# TeleVue® Visionary WARRANTY REGISTRATION FORM

We sincerely thank you for your purchase and wish you years of pleasure using it!

**Tele Vue Warranty Summary**

Eyepieces, Barlows, Powermates, & Paracorr have a “Lifetime Limited” warranty, telescopes & accessories are warranted for 5 years. Electronic parts are warranted for 1 year. Warranty is against defects in material or workmanship. No other warranty is expressed or implied. No returns without prior authorization.

Lifetime Limited Warranty details online: http://bit.ly/TVOPTLIFE
5-Year/1-Year Warranty details online: http://bit.ly/TVOPTLIMITED
Subscribe to our Blog for the latest Tele Vue news: https://bit.ly/TeleVueBlog

**Keep For Your Records**

Dealer: _____ City/State/Country: _____

Date (day/month/yr): _____/_____/_____ **3-6mm Nagler Zoom (ENZ-0306)**

**Tele Vue®**
32 Elkay Drive
Chester, NY 10918-3001
U.S.A.

Please fill out, cut out, and mail form below within 2-weeks of product purchase. **Please include copy of sales receipt that has your name, the dealer name, and product name.**

Cut out mailing address at left, tape to envelope, insert form & sales receipt in envelope and apply sufficient postage to envelope.

**3-6mm Nagler Zoom (ENZ-0306)**

_____
Name Last First

_____
Street Address

_____
City State/Province

_____
Postal Code Country

Email*: _____

Phone: _____

Astro Club: _____

How did you learn about this product?

☐ Dealer ☐ Friend ☐ Tele Vue Blog
☐ CloudyNights.com ☐ TeleVue.com
☐ Social Media/Magazine/Other(s):

What made you decide to buy this and your comments after using the product?

Purchase Information

Dealer: _____

City/State/Country: _____

Date (day/month/yr): _____/_____/_____

# VIP-2010 VISUAL-IMAGING PARACORR TYPE-2




Newtonian/Dobsonian telescopes can benefit from using a Tele Vue Paracorr (Parabola Corrector) to eliminate coma in the image. Coma is the effect that makes off-center stars appear like little comets (it becomes more apparent as stars move closer to the edge of the field). While a Newtonian/Dobsonian telescope will benefit from the use of Paracorr, those faster than f/5.0 will see the greatest results. Stars at the edge of the field will improve so dramatically, that when using top-notch Tele Vue eyepieces an object will be equally sharp anywhere in the field. It also prevents faint stars from disappearing at the edge of the eyepiece field. This is not only aesthetically pleasing, but it also greatly reduces the need to constantly nudge the scope to keep the object centered in the "sweet spot." Just insert Paracorr into your 2" focuser like a 2" Barlow (it has a 15% [1.15x] magnification factor) and add Tele Vue eyepieces to suit your needs. It's a recipe for perfection when combined with Tele Vue eyepieces.

The Paracorr Type-2 allows an f/3 parabolic mirror to perform like an f/12 without it. This permits development of a new generation of larger ladderless Dobs, with bigger, sharper fields than ever before. Indeed, it's already been successfully applied by Mike Lockwood to his 20" f/3 and 14.5" f/2.55!

This model Paracorr is dual function: the tunable top permits positioning all Tele Vue eyepieces for optimum performance (see eyepiece position chart on the other side), and the optical assembly can be removed for use in an imaging system with DSLR or CCD cameras along with Tele Vue Imaging System accessories.

Enter bit.ly/TVOPTPC in browser URL bar for more info.

# This Eyepiece Accepts BANDMATE™ Filters



Adding Bandmate filters to your eyepiece make nebulae "pop-out" in the field. Bandmate does this by passing select wavelengths of light and blocking other to darken the sky and increase contrast. Several filters are available for 2" and 1¼" barrel eyepieces.

- Bandmate Nebustar is a a unique narrowband filter design specifically for Tele Vue as a general-purpose nebula filter for scopes of any size. Unlike other ultra-high constrast (UHC) designs, Nebustar blocks red wavelengths normally passed by typical UHC filters. The design eliminates star bloat to produce sharper, more natural looking stars along with enhanced nebulosity.
- Bandmate OIII filter enhances planetary nebulae and supernovae remnants.
- Bandmate Hβ brings out the hydrogen-beta emission lines found in hydrogen emitting nebulae.

Enter bit.ly/TVOPBM2 in browser URL bar for more info.

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BV-DX-DXA-PC-BM

# Choosing Your Eyepieces

**by Al Nagler**
**CEO, Tele Vue Optics, Inc**

***MAGNIFICATION***

Eyepieces determine your telescope's magnification.

**Magnification = telescope focal length ÷ eyepiece focal length**

***TRUE FIELD OF VIEW***

Eyepieces also determine the true field you see in the sky. To calculate the true field of view that you will see (in degrees):

**True field of view = (eyepiece field stop diameter ÷ telescope focal length) x 57.3**

***THE FIELD STOP AND APPARENT FIELD OF VIEW***

The field stop is the metal ring inside the eyepiece barrel that limits the field size. It's projected by the eyepiece so that it appears as a circle out in space when you look through the eyepiece. The angular diameter of this circle is called the apparent field of view (AFOV) and is a fixed property for each eyepiece design. For example, Plössl and Nagler Zoom eyepieces have an AFOV of 50º, Panoptics have 68º, Delos have 72º, Naglers have 82º, Ethos have 100º and the Ethos-SX eyepiece has 110º.

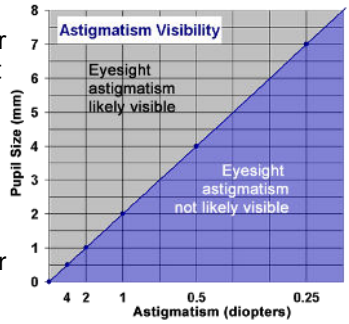
***LOW-TO-MEDIUM POWER VIEWING***

For low-power viewing of large objects, or to use your telescope as a low-power finder, use an eyepiece that delivers close to the maximum possible true field of view (note that for 1.25" eyepieces, the maximum field stop diameter is 27mm; for 2" eyepieces, it's 46mm). Then add eyepieces covering uniform increments in smaller field stops. For example, if your widest field eyepiece has a 40mm diameter field stop and you choose a decreasing increment diameter factor of 2 (which results in a 4x decrease in area size), you'll end up with eyepieces having field stop diameters of approximately 40mm, 20mm and 10mm. To further fill in with incremental steps, add eyepieces with approximate field stop diameters of 28mm and 14mm. Of course, avoid duplicating focal lengths. For example, if you use a 31mm Nagler (with a 42mm field stop diameter), you would not need a 32mm Plössl (with a 27mm field stop diameter).

In general, for each field stop size, choosing eyepieces with shorter focal lengths and larger apparent fields of view will allow you to see more detail and fainter stars. In addition, you'll have a smaller exit pupil to better match your eyesight.

***EYEGLASSES AND EYE RELIEF***

If you do not need eyeglasses to correct astigmatism, don't use them when observing. If you wear glasses to correct astigmatism, make sure they're multi-coated, and try to choose eyepieces that have at least 15mm to 20mm of eye relief, to minimize any field reduction (vignetting). However, you will find that with small exit pupils such as 1mm or less, you probably will not need eyeglasses, and can therefore use eyepieces with less eye relief. You can use DIOPTRX instead of eyeglasses for best performance, with Tele Vue eyepieces that accept this accessory.




***EXIT PUPIL***

The exit pupil is the image of the objective that is formed by the eyepiece. It's where you place your eye to see the full field of view.

**Exit pupil = eyepiece focal length ÷ telescope *f*/#**

For reflecting telescopes, it's best to avoid exit pupils larger than 7mm or smaller than 0.5mm. Refracting telescopes have no upper limits on exit pupil sizes.

***IMAGE AMPLIFIERS (Barlows and Powermates)***

You can also choose a long focal length eyepiece with comfortable eye relief and use image amplifying lenses to increase power. Tele Vue makes Barlows and Powermates (an improvement to the Barlow-type design) in magnification factors of 2x, 2.5x, 3x, 4x and 5x.

***PARACORR Type-2 (Parabola Corrector)***

If you have a Newtonian or Dobsonian reflector that's *f*/5.0 or faster, you should seriously consider using the Paracorr to eliminate coma, so your full field eyepiece sharpness is not compromised. Paracorr also acts like a 1.15x image amplifier, so, for example, a 1000mm *f*/4.5 scope becomes an 1150mm *f*/5.2 scope. Adjust your eyepiece focal length choices accordingly. Paracorr Type-2 is for scopes as fast as f/3.0.

***HIGH-POWER VIEWING***

Once you've selected an eyepiece set based on field stop sizes, calculate the magnifications produced with your scope. For planetary or double star observing, you'll want an eyepiece in at least the 150x range. For determining maximum power, a good rule of thumb is to use no more than 60x per inch of aperture for scopes with apertures up to 6". Higher magnifications may still be pleasing but will not likely reveal any additional detail. Realistically, the atmosphere will usually limit your planetary observing to a maximum magnification of about 300x, no matter how large your telescope aperture.

Basically, you'll be choosing low and medium power eyepieces by field stop increments to "frame" the subject, and high power eyepieces by magnification increments (based on your scope's aperture), to reach the optimum contrast and resolution for viewing planets and double stars.

Check out ***www.televue.com*** for the following related articles: "Choosing Your Telescope's Magnification", "Eyepieces for Small Dobs" and "Determining When To Use Eyeglasses".

For more individual advice on specific applications, you can always call Tele Vue at 845-469-4551

# TELE VUE EYEPIECE SPECIFICATIONS

Tele Vue recommends choosing low and medium power eyepieces in ratios of field stop diameters. For example, factors of 1.4 or 2.0. When choosing higher power eyepieces, use ratios of magnification.

| Focal Length (mm) | Type | Product Code | Apparent Field (deg) | Field Stop Dia. (mm) | Eye Relief (mm) | Dioptrx Ready | Pupil size in mm for various f/ratio telescopes | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | f/4.5 | f/5.2 | f/7 | f/10 | f/14 |
| **2" Eyepieces for Wide True Fields** | | | | | | | | | | | |
| 55 | Plössl | EPL-55.0 | 50 | 46.0 | 38 | Y | 12.2 | 10.6 | 7.9 | 5.5 | 3.9 |
| 41 | Panoptic | EPN-41.0 | 68 | 46.0 | 27 | Y | 9.1 | 7.9 | 5.9 | 4.1 | 2.9 |
| 31 | Nagler 5 | EN5-31.0 | 82 | 42.0 | 19 | Y | 6.9 | 6.0 | 4.4 | 3.1 | 2.2 |
| 35 | Panoptic | EPN-35.0 | 68 | 38.7 | 24 | Y | 7.8 | 6.7 | 5.0 | 3.5 | 2.5 |
| 21 | Ethos | ETH-21.0 | 100 | 36.2 | 15 | Y | 4.7 | 4.0 | 3.0 | 2.1 | 1.5 |
| 22 | Nagler 4 | EN4-22.0 | 82 | 31.1 | 19 | Y | 4.9 | 4.2 | 3.1 | 2.2 | 1.6 |
| 27 | Panoptic | EPN-27.0 | 68 | 30.5 | 19 | Y | 6.0 | 5.2 | 3.9 | 2.7 | 1.9 |
| 17 | Ethos | ETH-17.0 | 100 | 29.6 | 15 | Y | 3.8 | 3.3 | 2.4 | 1.7 | 1.2 |
| 24 | Delos | EDL-24.0 | 72 | 29.6 | 22 | Y | 5.3 | 4.6 | 3.4 | 2.4 | 1.7 |
| 19 | Nagler 7 | EN7-19.0 | 82 | 27.1 | 19 | Y | 4.2 | 3.7 | 2.7 | 1.9 | 1.4 |
| 14 | Nagler 7 | EN7-14.0 | 82 | 20.5 | 19 | Y | 3.1 | 2.7 | 2.0 | 1.4 | 1.0 |
| **1¼" Eyepieces for Wide True Fields** | | | | | | | | | | | |
| 40 | Plössl | EPL-40.0 | 43 | 27.0 | 28 | Y | 8.9 | 7.7 | 5.7 | 4.0 | 2.9 |
| 32 | Plössl | EPL-32.0 | 50 | 27.0 | 22 | Y | 7.1 | 6.2 | 4.6 | 3.2 | 2.3 |
| 24 | Panoptic | EPN-24.0 | 68 | 27.0 | 15 | Y* | 5.3 | 4.6 | 3.4 | 2.4 | 1.7 |
| 13 | Ethos | ETH-13.0 | 100 | 22.3 | 15 | Y | 2.9 | 2.5 | 1.9 | 1.3 | 0.9 |
| 16 | Nagler 5 | EN5-16.0 | 82 | 22.1 | 10 | N | 3.6 | 3.1 | 2.3 | 1.6 | 1.1 |
| 19 | Panoptic | EPO-19.0 | 68 | 21.3 | 13 | Y* | 4.2 | 3.7 | 2.7 | 1.9 | 1.4 |
| 25 | Plössl | EAP-25.0 | 50 | 21.2 | 17 | N | 5.6 | 4.8 | 3.6 | 2.5 | 1.8 |
| 17.3 | Delos | EDL-17.3 | 72 | 21.2 | 20 | Y | 3.8 | 3.3 | 2.5 | 1.7 | 1.2 |
| 18.2 | DeLite | EDE-18.2 | 62 | 19.1 | 20 | Y | 4.0 | 3.5 | 2.6 | 1.8 | 1.3 |
| 10 | Ethos | ETH-10.0 | 100 | 17.7 | 15 | Y | 2.2 | 1.9 | 1.4 | 1.0 | 0.7 |
| 13 | Nagler 6 | EN6-13.0 | 82 | 17.6 | 12 | Y* | 2.9 | 2.5 | 1.9 | 1.3 | 0.9 |
| 14 | Delos | EDL-14.0 | 72 | 17.3 | 20 | Y | 3.1 | 2.7 | 2.0 | 1.4 | 1.0 |
| 20 | Plössl | EAP-20.0 | 50 | 17.1 | 14 | N | 4.4 | 3.8 | 2.9 | 2.0 | 1.4 |
| 15 | DeLite | EDE-15.0 | 62 | 16.0 | 20 | Y | 3.3 | 2.9 | 2.1 | 1.5 | 1.1 |
| **1¼" Eyepieces for Medium Powers** | | | | | | | | | | | |
| 12 | Delos | EDL-12.0 | 72 | 15.0 | 20 | Y | 2.7 | 2.3 | 1.7 | 1.2 | 0.9 |
| 13 | DeLite | EDE-13.0 | 62 | 13.8 | 20 | Y | 2.9 | 2.5 | 1.9 | 1.3 | 0.9 |
| 9 | Nagler 7 | EN7-09.0 | 82 | 13.0 | 19 | Y | 2.0 | 1.7 | 1.3 | 0.9 | 0.6 |
| 10 | Delos | EDL-10.0 | 72 | 12.7 | 20 | Y | 2.2 | 1.9 | 1.4 | 1.0 | 0.7 |
| 15 | Plössl | EAP-15.0 | 50 | 12.6 | 10 | N | 3.3 | 2.9 | 2.1 | 1.5 | 1.1 |
| 9 | Nagler 6 | EN6-09.0 | 82 | 12.4 | 12 | Y* | 2.0 | 1.7 | 1.3 | 0.9 | 0.6 |
| 11 | DeLite | EDE-11.0 | 62 | 11.7 | 20 | Y | 2.4 | 2.1 | 1.6 | 1.1 | 0.8 |
| 9 | DeLite | EDE-09.0 | 62 | 9.6 | 20 | Y | 2.0 | 1.7 | 1.3 | 0.9 | 0.6 |
| 11 | Plössl | EAP-11.0 | 50 | 9.1 | 8 | N | 2.4 | 2.1 | 1.6 | 1.1 | 0.8 |
| **1¼" Eyepieces for Higher Powers** | | | | | | | | | | | |
| 8 | Ethos | ETH-08.0 | 100 | 13.9 | 15 | Y | 1.8 | 1.5 | 1.1 | 0.8 | 0.6 |
| 6 | Ethos | ETH-06.0 | 100 | 10.4 | 15 | Y | 1.3 | 1.2 | 0.9 | 0.6 | 0.4 |
| 8 | Delos | EDL-08.0 | 72 | 9.9 | 20 | Y | 1.8 | 1.5 | 1.1 | 0.8 | 0.6 |
| 7 | Nagler 6 | EN6-07.0 | 82 | 9.7 | 12 | Y* | 1.6 | 1.3 | 1.0 | 0.7 | 0.5 |
| 4.7 | Ethos SX | ETH-04.7 | 110 | 8.9 | 15 | Y | 1.0 | 0.9 | 0.7 | 0.5 | 0.3 |
| 5.5 | Nagler 7 | EN7-05.5 | 82 | 8.1 | 19 | Y | 1.2 | 1.1 | 0.8 | 0.6 | 0.4 |
| 6 | Delos | EDL-06.0 | 72 | 7.6 | 20 | Y | 1.3 | 1.2 | 0.9 | 0.6 | 0.4 |
| 7 | DeLite | EDE-07.0 | 62 | 7.5 | 20 | Y | 1.6 | 1.3 | 1.0 | 0.7 | 0.5 |
| 3.7 | Ethos SX | ETH-03.7 | 110 | 7.0 | 15 | Y | 0.8 | 0.7 | 0.5 | 0.4 | 0.3 |
| 5 | Nagler 6 | EN6-05.0 | 82 | 7.0 | 12 | Y* | 1.1 | 1.0 | 0.7 | 0.5 | 0.4 |
| 8 | Plössl | EAP-08.0 | 50 | 6.5 | 6 | N | 1.8 | 1.5 | 1.1 | 0.8 | 0.6 |
| 4.5 | Delos | EDL-04.5 | 72 | 5.6 | 20 | Y | 1.0 | 0.9 | 0.6 | 0.5 | 0.3 |
| 5 | DeLite | EDE-05.0 | 62 | 5.3 | 20 | Y | 1.1 | 1.0 | 0.7 | 0.5 | 0.4 |
| 3.5 | Nagler 6 | EN6-03.5 | 82 | 4.8 | 12 | Y* | 0.8 | 0.7 | 0.5 | 0.4 | 0.3 |
| 3.5 | Delos | EDL-03.5 | 72 | 4.4 | 20 | Y | 0.8 | 0.7 | 0.5 | 0.4 | 0.3 |
| 4 | DeLite | EDE-04.0 | 62 | 4.3 | 20 | Y | 0.9 | 0.8 | 0.6 | 0.4 | 0.3 |
| 3 | DeLite | EDE-03.0 | 62 | 3.2 | 20 | Y | 0.7 | 0.6 | 0.4 | 0.3 | 0.2 |
| **1¼" Zoom Eyepieces for Medium and Higher Powers** | | | | | | | | | | | |
| 6-3 | Nagler Zoom | ENZ-0306 | 50 | 5.1-2.6 | 10 | N | 1.3-0.7 | 1.2-0.6 | 0.9-0.4 | 0.6-0.3 | 0.4-0.2 |

NOTE: True Field in degrees = (Field Stop dia./Telescope Focal Length) X 57.3° *Indicates additional Dioptrx Adapter required

As of January 2012, all Tele Vue eyepieces have a limited lifetime warranty.

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