

TELEVUE PRONTO 70MM F/6.8 ED GRAB & GO REFRACTOR

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TeleVue Optics (TV) was founded in 1977 by Al Nagler¹. This New-York based company is mainly known for its high-quality eyepieces² and apochromatic telescopes. TeleVue Apochromatic telescopes range from 60mm to 127mm³.

In 1982 Nagler patented the Multi-Purpose-Telescope (MPT), a 5-inch f/4 refractor (509mm focal length). The MPT telescope was designed for use not only in conventional applications, but also for the quality control testing of TeleVue eyepieces. The first MPT instrument made remains in service at TeleVue testing at F/4, and with the iris diaphragm set at F/20 for inspecting eyepieces for cleanliness.

Most TeleVue telescopes are based on the "Petzval" design (Figure 1). A two element air spaced achromatic objective lens at the front of the telescope passes the light to a doublet lens positioned at the rear and before the focuser of the telescope; this doublet lens group functions to: 1) reduce the effective focal length, and; 2) reduce or eliminate curvature of field.

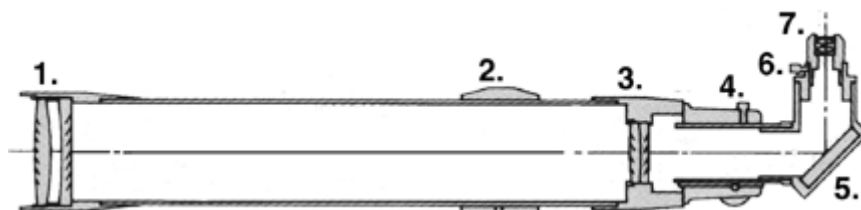


Figure 1- TeleVue "Renaissance" 4-inch 550mm F/5.5 Aplanat telescope U.S. Patent #4400065: 1. air spaced doublet objective, 2. mounting collar, 3. rear cemented doublet lens, 4. 2" focuser, 5. 2" mirror diagonal, 6. 2" to 1.25" reducer, 7. eyepiece (26mm Plössl).

In 1993 TeleVue introduced an improved version of the "Renaissance" and "Genesis"⁴ optical design. The most obvious improvement was the colour correction accomplished by a change of the type of glass employed in the front doublet lens. With an effective focal length of 540mm at F/5.4 the TV 101 was born incorporating one of the best 4-inch SD objective⁵ optics in the world – remaining one of the world's fastest, flat field apochromatic 4 inch telescope (Figure 2). In 2001 the NP101 was introduced with improved optical and mechanical characteristics.

The objective of the TV NP101 is an air spaced doublet design where two lenses (crown and flint) are matched to work as one; the positive element is of a fluorocrown substitute with special dispersion glass. This design allows excellent colour correction without annoying purple fringes (secondary colour). A fluorite doublet telecompressor/field flattener lens group provides a flat field and wide

¹ <http://www.televue.com/>

² Tele Vue sells Plössl, Radian, Panoptic, Delos, DeLite, Nagler, Ethos and Nagler Zoom eyepieces

http://www.televue.com/engine/TV3b_page.asp?ID=2

³ http://www.televue.com/engine/TV3b_page.asp?ID=202

⁴ The Genesis featured improved colour correction over its predecessor due in part to the incorporation of a calcium fluorite element in the field flattener positive lens components at the rear of the telescope tube assembly.

⁵ Special dispersion doublet lens

angle capability. Spherical correction is excellent also with the air gap objective contributing to this correction. Images of the stars and the planets are presented in their natural colours, daytime objects viewed at commonly used magnifications will appear three dimensional and sharp and contrasting.



Figure 2- TV-101 F/5.4 apochromatic (Nagler-Petzval) refractor.

TV-NP101 Specifications:

TV – NP101 Type APO (Nagler-Petzval) Refractor
(Elements/Groups: 4/2)
Objective (mm) 101
Focal Length (mm) 540
Focal Ratio F/5.4
Drawtube/Focuser 2-inch, rack/pinion
Length OTA (inch) 26.1
Length with diagonal (inch) 29 (with 2-inch diagonal)
Weight OTA/Std. Config (lbs) 9 / 11.3
Maximum Visual Field (deg.) 4.9 (with 2-inch 55mm Plössl)
Maximum Recommended Power (x) 250

The **Pronto ED doublet** multi-purpose telescope was introduced in 1993, a 70mm F/6.8 refractor with a 2-inch focuser, unique in its extreme portability (Figure 3 to 7).

The objective of the "Pronto" is an air spaced doublet design where two lenses are matched to work as one. The front element is a positive fluorocrown substitute of Extra-Low Dispersion ED glass and the rear element is of high index flint. This design allows good colour correction and stars appear to snap into focus as intense diamonds against a black velour background. At high magnifications some false violet may be noticed on very bright small objects. Images of large bright objects show good detail free of apparent false colour, sharp and contrasty.

PRONTO70 Specifications:

TeleVue Pronto air spaced doublet
Aperture 70mm
Focal length 480mm
Focal Ratio 6.8
Length 14-inch, 36cm
Weight 2.7Kg

The TeleVue Pronto is very similar to the TV-76 and shares the optics with the TeleVue Ranger. The TV-76 features a 76mm FPL-53 F6.3 apochromat doublet. The Pronto has a 70mm F/6.8 doublet ED objective with low chromatic aberration.

The Pronto objective is held in a slim, non-adjustable cell, nudged into alignment on an optical bench and then fixed in place with blind rivets. The tube is a very well made, compact heavy OTA (2.7Kg), finished in cream pebble powder coat or a mossy metallic green. Inside, the tube has no baffles. Instead it is lined with the TV-standard flocking paper very similar to black-painted sandpaper. The focuser is a single speed 2" rack-and-pinion focuser with its characteristic cast body, serial number plate and big focusing wheels. It also features a clamshell ring with an Allen bolt on one side and a thumbscrew on the other. The clamshell has three ¼-20 threads.



Figure 3- TeleVue Pronto 70mm F/6.8.



Figure 4- TeleVue Pronto 70mm F/6.8.



Figure 5- TeleVue Pronto 70mm F/6.8 | SM60 (BF15) – Optimized for H-alpha Solar observation.

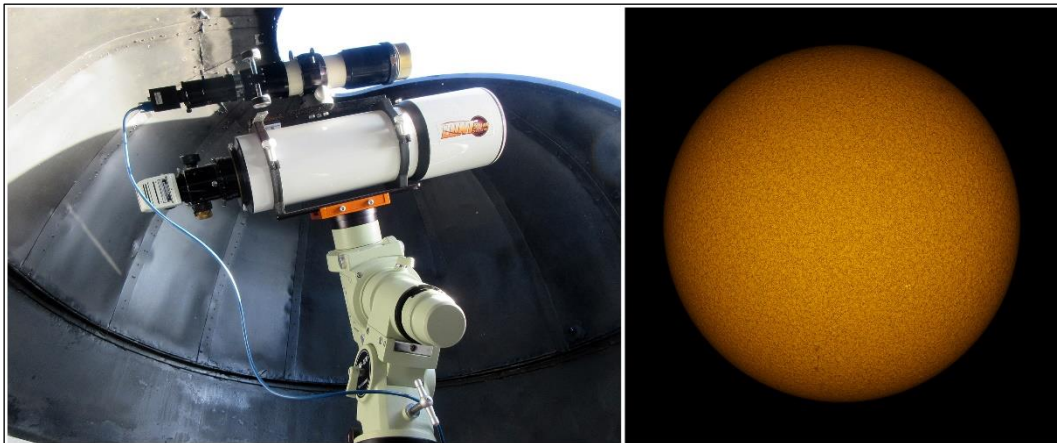


Figure 6- Pronto 70mm F/6.8 | SM60 (BF30)



Figure 7- SUN (20200919) H-alpha PROMS (08:00 UTC). PRONTO70 F/6.8, SM60, BF30, PGR GRASSHOPPER 3 GS3-U3-28S4M.