

The William Optics DDG Focus System

Carpe Telescopio? By Austin Grant

Okay, I'll admit it. I'm a fan of the Newtonian. As an aspiring astro-imager, I can't resist fast optics and a high aperture-to-price ratio. That said, Dr. James Dire's recent article on the William Optics Megrez 120 really stirred some deep-seated emotions in me. My first telescope was a 4-inch "Semi-Apo," and I think I've subconsciously wanted to revisit refractors. Would the Megrez be a good fit? I read Dr. Dire's article, and while the scope seemed to be a beautiful, solid performer, I was disappointed that the William Optics Digital Display Gauge (DDG) Focus System wasn't covered. I would have to wait for the follow-up before making a decision. Then it hit me. (This reminds me of one of my favorite jokes. Sometimes I wonder, "Why is that Frisbee getting bigger?" And then it hits me.) Someone has to write the follow-up. Carpe diem! A couple phone calls, a lengthy journey by boat (for the scope, not me) and I am prepared to zero in on this focuser.

The DDG Focuser is built into several of the William Optics refractors and is also available as a stand-alone component in both refractor and SCT form. It is

a great looking focuser and on this unit the fit and finish perfectly match the optical tube of the Megrez. It is a 3.5-inch model, with 2-inch and 1.25-inch capabilities, that is equipped with a 1:10 dual-speed micro-focuser. By loosening a thumb-screw at either the front or back of the focuser, either the entire assembly or just the rear components can be rotated 360 degrees. I found this especially handy when I wanted to rotate the camera but leave the DDG readout in place. Speaking of the DDG readout, it is easy to read, and has a built-in backlight. There are three buttons below the readout: On/Off, Light and Zero. The Light button is slightly raised and easy to find in the dark. The model I tested didn't include a built-in



Image 1 - The DDG-Focuser-Equipped William Optics 120 Megrez is shown carrying a WO AFR-IV flattener/reducer and the author's Canon DSLR.

thermometer, but it is present in the stand-alone focuser. This may be a feature that will be added to other models.

So this thing looks great, but how did it perform? I put a diagonal and fairly hefty eyepiece on it, racked the draw tube all the way in, and zeroed the DDG. I then ran the alignment procedure on my

THE WILLIAM OPTICS DDG FOCUS SYSTEM



Image 2 - This image of the Leo Triplet was captured while testing the accuracy of the WO DDG Focuser. The stack of 10 images was minimally processed without flats or darks and was executed solely to determine repeatability of the digital focus system.

mount. I refocused between stars to get a feel for how smooth it was and to compare the digital readings. The focuser was smooth as silk, without rough spots like ones I'm more accustomed to. My focus readings were all within two-hundredths of a millimeter and I attribute most of that tiny discrepancy to the atmosphere. The graduations on top of the draw tube perfectly matched the digital readout and were large enough to be easily read if you didn't want to use the digital function. The focuser performed flawlessly with an eyepiece, but how would it do with some imaging gear?

I image with a DSLR, so my setup isn't hefty compared to many of the CCD setups. I attached the William Optics AFR-IV Adjustable Flattener/.8x Reducer to the camera and it weighed in at just under three pounds. The focuser was just as smooth and precise as before. I had no problems using the fine focus knob and

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found that I only had to loosen the focus lock by about 15 degrees. I zeroed the DDG and then achieved focus with Live View and the FWHM feature in BackyardEOS. I took some short exposures of several dense star fields. The focus was good and the flattener was great – pin-point stars to the edges of the images. The accuracy of this focuser was fantastic, without a doubt.

How was the precision? To test this, I removed the imaging setup and once again zeroed the focuser. I then reattached the imaging tools and returned the focuser to the exact position I had used before (as indicated by the DDG). The focus was perfect. I removed and replaced the camera/flattener several more times, slewed to other targets and even rotated the focuser to several different positions. Each time, replacing the equipment and returning to the same position resulted in perfect focus. That's impressive!

Indeed, I couldn't be more impressed with the DDG Focuser. It is well built and very reliable. The accuracy and precision exceeded my expectations and I'll admit that those expectations were lofty. Before using the DDG system, I wasn't sold on a need for this technology – I didn't realize that my current setup severely limited my observing. With my existing setup, after setting up to image, I never remove the camera – too many factors could alter my results. But with William Optics' DDG focuser, I could switch from imaging to visual on a whim with no doubt that everything could quickly be returned to the exact focus position as before the switch.

Another fear I had was that temperature fluctuations would impact the accuracy of the DDG and therefore its usefulness. After some thought, though, I think the DDG could also be helpful even when used in varying temperatures. As-

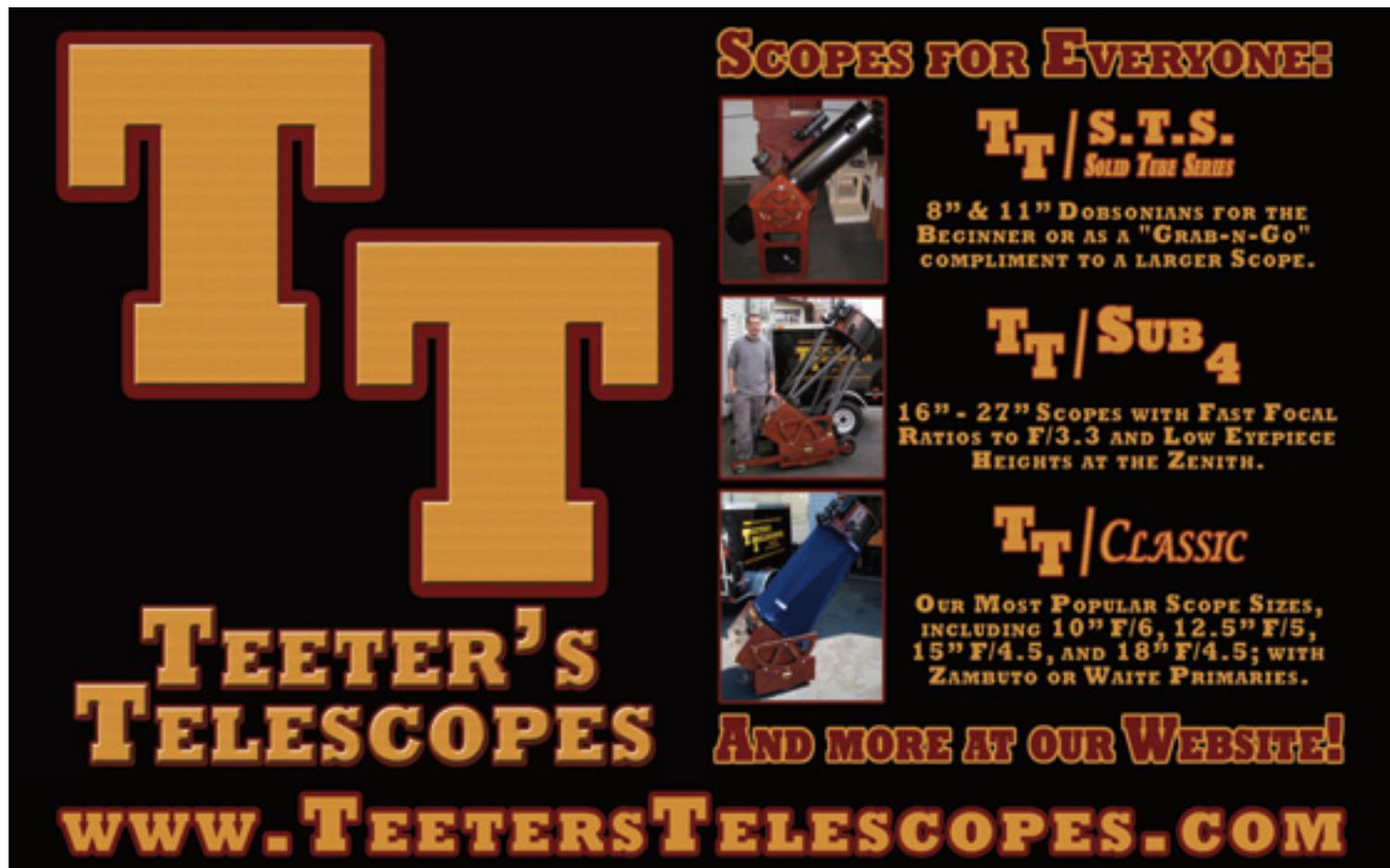
suming the thermal expansion is linear, several focus point/temperature settings could be recorded and the remaining data extrapolated. How useful would it be to have the ability to predict the focus point based on temperature?

All things considered, I'm sold. I've changed my tune and now know just how badly I need a high-quality William Optics refractor fitted with its DDG focus system. Is it December yet? 

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