

# Quick Looks

## Baader T2 System

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Astrophotography is an unforgiving hobby. Much like high resolution planetary observations, DSO photos will pick up imperfections in things like focus or collimation quite rapidly. The situation for DSO astrophotographers is made worse by our tendency to use “faster” scopes with low f-ratios that make the tolerances exponentially smaller. Worse yet, we often assemble things in the dark and hang not a lightweight high-power eyepiece off our focuser, but heavy cameras, filter assemblies, etc. All this leads to the very real potential for flex in our imaging chain – flex that will keep the camera from being held in critical alignment with the optics.

Most cameras have internal T-threads (42 mm x 0.75 mm) available as this has become a *de facto* standard in astrophotography. On many, the provided 1.25” nosepiece can be unscrewed to reveal these threads

(DSLRs and SLRs get these via T-ring adapters). The 1.25” nosepiece, when held in place by a simple set-screw, often does not provide a very rigid means of attaching the camera to the scope. The T-threads, however, do – at least if there is a way to solidly put T-threads on the telescope. The Baader T2 system is an extensive line of accessories to let you do this and more. The entire line is mind-bogglingly huge and encompasses far more than accessories to make astrophotography easier (with a good bit of it only described on Baader’s German site; <http://www.baader-planetarium.de/>). In this Quick Look at the line, I have highlighted a number of items of particular interest, all of which are available not only from Baader in Europe, but also from their US distributor, Alpine Astro (<http://www.alpineastro.com/>).



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### Quick-change system(T2-6/7)

This system allows you to quickly and easily swap T-thread gear onto your scope (see photo). One part remains on the scope (the “collar”) and another on your camera(s), or even an eyepiece holder (the “ring”). You can easily swap gear without unscrewing / screwing the threads (never fun in the cold or with a mess of cables attached). You can also use this to easily rotate your camera to better compose a shot. Since discovering these, I've shifted over to them wherever I can. I've got an eyepiece mounted to one ring and two rings setup on two different cameras, all nearly parfocal. This way, I can swap the eyepiece in while setting up the mount and easily exchange it for a camera without hassle. Focus remains close enough and ready for fine tuning, and the whole system provides a very solid connection. It uses 15 mm of back-focus.

### Fixed extension tubes (T2-25A-C)

7mm, 15mm, and 40mm varieties.

Nobody who has a focal reducer or a coma corrector should be without a set of extension rings. Getting the CCD placed at the right distance relative to these correctors is critical to their best performance. DSLRs adhere to the spec setup by 35mm cameras and (which ends up at ~ 54 mm from the front of a T-ring adapter to the film plane), and many correctors are designed around this distance. But, most CCD cameras are not. So, if you want to get your typical CCD camera the right distance from the Baader MPCC, TeleVue Paracorr, or just about any focal reducer, you'll need to be able to control the amount of spacing. In addition, doing things like mounting a camera on a refractor often means accounting for the length of the light path normally taken up by a diagonal. Extension rings fit the bill here.

### Variable extension tube (T2-33)

My main complaint with the fixed extension tubes offered is that it would be nice to have a few more lengths available (e.g. 5mm and 10mm) to help fine-tune the needed length. Baader's solution to this is to offer a variable extension tube that offers a continuous range of adjustment from 12-16 mm. Think of it as a helical focuser with a locking ring and with T-threads on the input and output. In fact, the unit consists of several existing Baader parts: an internal/external thread adapter (#26), an external/internal thread adapter (#34) and a lock ring (#35), each of which are useful in their own right.

### Focusing ring collar (T2-30)

Otherwise known as a “parfocal eyepiece adapter”,

this lets you have an eyepiece ride higher than normal in your focuser. Visual observers have used these often to make eyepiece swaps easier and a number of cameras come with such a gizmo. If you use a 1.25” nose on your camera, having an eyepiece that you can put in place to verify that yes, the target really is there and/or to get a rough focus is a nice time-saver.

### 2” Deluxe Clamping Eyepiece Holder (T2-17)

This is essentially the same device that comes with many 2” focusers to let you attach 1.25” eyepieces and cameras. It's a 2” barrel with a 1.25” hole. The difference is that unlike most, this one works. Ever put your laser collimator into one of these adapters and give it a little wiggle? Mine moved the beam 1” over about a 10' span using any one of an array of adapters I had here. This kind of slop made my laser pretty much useless for collimation (it still entertained my dog). This one works and clamps the 1.25” gear in solidly by holding it on 3 points (a compression ring inside keeps you from marring the barrel). The collimator didn't move with this at all and removing and inserting it repeatedly yielded the

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same location. Now, take these results to your camera that uses a 1.25" nose. It sure would be nice if the CCD plane was flat and that focus on one side of the chip was the same as on the other side, wouldn't it? The flop found in typical 2"-1.25" adapters induces this problem, but the Baader adapter holds the camera rock-steady. Of course, it's threaded for standard 2" filters but also has SCT female threads just inside there. So, you can use this to mount directly onto SCT scopes or accessories.

### **Click-Lock Eyepiece clamp (T2-08)**

This does the same job as the 2" Deluxe Clamping Eyepiece Holder above, but uses a twist-lock clamping mechanism for easy insertion and removal. Unlike the T2-17, it has a male T-thread on the output end that can be exposed. This thread can actually provide ~6 mm of extension to let you fine-tune the distance to the focal plane. This can come in quite handy if trying to set things up to be parfocal. On the input end, you get internal T-threads.

### **2" T-thread Nosepiece (T2-16)**

Another option for mounting that camera to your telescope is to ditch the 1.25" nose entirely and use a 2" nose instead. This will give you a much more solid mating to your telescope if you've got a 2" focuser than the 1.25" nose would (unless you use one of the above adapters). You can even leave this on your 2" focuser if you then use a quick-change adapter (above) and when not using an MPCC coma corrector this is the basic setup I use.

### **Short T-Adapter (T2-21)**

Sometimes you need to get from SCT threads to T-threads as quickly as possible. For example, if you're using an SCT reducer every millimeter of distance from that reducing lens to your sensor is increasing the reduction factor more. Have a filter wheel in between the reducer and the sensor? That typical long STC-T adapter may not be too long. Want to use the reducer just for its flattening effect or want a more gentle reduction so that you can cleanly cover a bigger sensor? Getting to T-threads in the shortest possible distance can be needed. This one does it in 15 mm, far less than the typical 40 mm. (Note, ScopeStuff actually sells one that is even shorter).

### **Double-T Filter holder (T2-31)**

So, you've decided to ditch the 1.25" nosepiece en-

tirely and use 2" barrels to mate to your scope and nice, solid T-threads to get to your camera. You've got a nice rock solid connection between your camera and your scope, but how do you now use those 1.25" filters? You no longer have a nice place to screw them on. Oops. Enter the T2-31. The outside of the filter holder consists of T-threads much like a T-thread gender changer. This allows you to screw it into any set of internal (female) T-threads. Inside is a threaded hole to accept 1.25" filters, focal reducers, etc. Some have even used this (potentially with other adapters) to put their 1.25" filters in front of SLR camera lenses.

### **T2-Lock ring (T2-35)**

Have a nice solid all-T-thread setup but need to rotate a component? Loosening the threads lets you rotate it, but then it's loose. Solution? The T2-lock ring is just a ring with internal T-threads and a nice knurled outside grip, but this lets you securely lock things in any orientation you need.

### **Threaded adapters**

Need to get from 43 mm Takahashi threads to T-threads? How about the 36.4 mm threads found on range of scopes or the 44 mm threads from Zeiss? How about making internal T-threads out of internal 48 mm (2" filter) threads? Baader has an assortment of miscellaneous adapters with far too many to list here. But, odds are, if you need some way to get into or out of T-threads, there's something in the T2 line to do it for you.

### **Summary**

I have been quite impressed with the Baader accessories I have owned and used (including other accessories such as the Multi-Purpose Coma Corrector and their filters). All have been ruggedly built (e.g. hard anodizing on all metal surfaces, hard dielectric coatings on filters, etc.) and precision-made. While many of the components cost a bit more than can be found elsewhere, the cost difference is rarely large and the Baader gear is consistently very high-quality (e.g., all threads mate well and move smoothly, all internal surfaces are exceptionally well baffled, etc.) When coupled with the versatility and stability provided by the T2 system, we have something you may want to check out. ♦

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