Sean Walker

The Baader Q-Turret Eyepiece Set

This modern take on a classic telescope accessory and eyepiece design is a boon for planetary observers and imagers.

S&T PHOTOGRAPHS BY SEAN WALKER AND DENNIS DI CICCO

Described in detail in the accompanying text, the new Baader Classic Q-Turret Eyepiece Set includes four eyepieces, a versatile Barlow, and the eyepiece turret all packaged in an attractive metal container. The items (including the container) can be purchased separately.

Baader Classic Q-Turret Eyepiece Set

U.S. Price: $395
(items also available separately)
Available in the U.S. from Alpine Astronomical www.alpineastro.com

Although my astronomical interests focus mainly on astrophotography, when it comes to visual observing I most enjoy solar system objects and the occasional double star. So it piqued my interest when the venerable German firm Baader Planetarium introduced a new observing package geared toward planetary observers.

The Classic Q-Turret Eyepiece Set includes a four-position eyepiece turret, a set of four eyepieces, and a 2.25× convertible Barlow all packaged in an attractive foam-fitted metal container. The turret, eyepieces, and Barlow are standard 1¼-inch format. Each item individually represents a great value, and together they make an excellent observing package.

The idea behind a turret to hold multiple eyepieces dates back to 1863, when the German optics manufacturer Ernst Leitz introduced a turret system for microscope objectives. By the late 19th century, commercial eyepiece turrets were being made for telescopes. These

accessories, however, have only been available sporadically in the United States. Several companies advertised them during the 1950s and '60s, but they never became very popular. Perhaps that will change with the introduction of the Baader model, especially since it is of far better quality than any of the ones I've seen going back to the '60s.

The Q-Turret

The Q-Turret, which is available separately for $85, is manufactured from high-density plastic that is lightweight and durable. Its four eyepiece holders are attached to a convex disk carefully designed to require a minimum of additional focus travel. When fitted to a telescope's 1¼-inch focuser, the Q-Turret moves eyepieces just 1½ inches (38 mm) farther out from the focuser.

Although this distance is inconsequential for Schmidt- and Maksutov-Cassegrain telescopes that focus by moving their primary mirrors, it may present a problem for telescopes with fixed focal points. For example, the additional 1½ inches of back focus was just slightly too much for my 12½-inch Newtonian and its low-profile focuser. Fortunately, it was easy for me to move my scope's primary mirror forward in its tube by 1 inch and solve the problem, but this may not be possible with some commercial telescopes. If you have a telescope with a fixed focal point, make sure you can rack your focuser in by at least 1½ inches from the focal point in order to use the Q-Turret in its basic configuration.

Another option for reaching focus with the Q-Turret is to thread the 2.25× Barlow lens into the turret's nosepiece. Doing this will extend the telescope's focal point out from the focuser, but at the cost of increasing the magnification of all the eyepieces.

Once I moved my scope's primary mirror forward, every eyepiece I tried came to focus. The Q-turret uses a nice click-stop mechanism to reliably position each eyepiece holder precisely over the turret's nosepiece when you rotate the unit. This feature works very well. The turret rotates smoothly and easily by hand, and the click stops provide enough tension to prevent it from turning even when you are using moderately heavy eyepieces or planetary cameras.

I certainly enjoyed using the Q-Turret, and I found it particularly nice when used with my Imaging Source video camera. I would center a crater in the field of the 10-mm Classic Ortho eyepiece and then rotate the camera into position. Without fail, the crater would be accurately centered in the camera's frame. This arrangement will also be ideal for planetary imaging, since it can be notoriously difficult to center planets in the small fields of most video cameras.

One drawback I encountered with the Q-Turret was an artifact of our summer climate here in the northeastern U.S. Our nights are generally very humid, and radiational cooling can quickly drop the temperature of exposed optical

Top: **The author tested the Classic Q-Turret Eyepiece Set with his 12½-inch Newtonian reflector after moving the primary mirror ½ inch forward in its tube to allow for the additional back focus required for the Q-Turret.** ***Bottom:*** **The Q-Turret is an ideal accessory for planetary imagers working with compact video cameras. After centering the target in an eyepiece, you can rotate the camera into position and have the target centered in the frame. Note the impromptu lens caps, which keeps dew from forming on the eyepieces. They are described in the text.**

WHAT WE LIKE:

Well made and durable

Precision click stops

Eyepieces have classic Zeiss Jena optical design

WHAT WE DON'T LIKE:

Only available in 1¼-inch format

The Barlow lens provides the same 2.25× magnification increase for eyepieces when it is threaded into its own barrel or when threaded into the Q-Turret's nosepiece.

surfaces below the dew point, causing them to fog up. This frequently happened to all four eyepieces simultaneously, temporarily putting an end to my observing. That was before I discovered an interesting trick. When the rubber eye guard is slipped off each eyepiece, the top rim of the eyepiece is the perfect diameter to snuggly hold the plastic dust caps supplied for the eyepiece barrels. These impromptu lens caps, which were very easy to pop on and off, kept the eyepieces dew free when I wasn't looking through them.

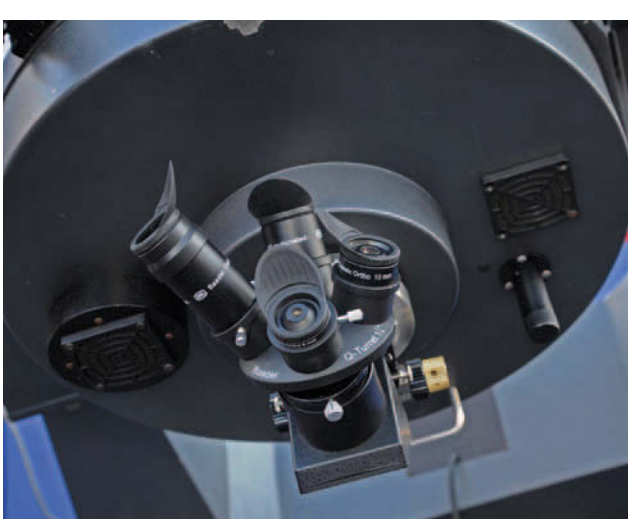
The Baader Classic Eyepieces

The four Baader Classic eyepieces supplied with the set can be purchased individually for $74 each. There are three orthoscopic eyepieces (18-, 10-, and 6-mm) and a 32-mm Plössl. They are claimed to be parfocal, but I found that each required a slight adjustment of the telescope's focus when swapping among them. When used in the Q-Turret, however, it was easy enough to slide each eyepiece back and forth slightly in its holder and lock it into a precise parfocal position. This made switching the eyepieces quick and easy.

With my 12½-inch Newtonian, the eyepieces produced magnifications of 51×, 90×, 162×, and 270×. Adding the Barlow lens to the turret's nosepiece upped the magnifications to 114×, 203×, 365×, and 608×, a range that almost perfectly accommodates my viewing habits when the seeing is very good.

As a set, all four eyepieces worked well. I noticed that I needed to keep my eye carefully centered in the field of the 32-mm Plössl, since the view tended to black out if I didn't. The kit includes a plastic extension piece that fits between the top of the Plössl's barrel and eye guard and help users position their eyes properly. It did help reduce the blackouts slightly.

Overall, the views through the Plössl were pleasant, with good star images nearly to the edge of the field, and only a slight bit of color fringing was apparent when bright



The Q-Turret's compact size makes it an easy-to-use accessory for Cassegrain telescopes.

objects such as the Moon were at the edge of the field.

My best views were with the three orthoscopic eyepieces. Baader states that they are based on the legendary Zeiss Jena orthoscopic design, with a few notable differences. First, as anyone familiar with the views through traditional orthoscopic eyepieces knows, the design has a narrow apparent field of view (AFOV). Baader, however, has used a larger field stop than found in traditional orthoscopics, and this has increased the AFOV to 50°. This was done to help observers find their targets and center them in the field rather than to create a wider field of excellent images. But even a 50° field may seem small in an age when many modern eyepieces have 70°, 80°, and larger fields.

Although I knew that Baader chose a wider field at the expense of what some may consider imperfect stellar images at the edge of the field, I found the drop in performance to be inconsequential. Star images were slightly degraded at the edge of the field; they were more out-of-focus than astigmatic, though it was hard to tell which caused the most distortion. But the Classic Orthos aren't designed for observing extended star fields. Like traditional orthos, their sweet spot is at the center of the field.

One of my test targets for the eyepieces was the famous double star Gamma Virginis, better known as Porrima. This pair of 3.5-magnitude suns is currently widening from a minimum separation about a decade ago, and they now appear almost 2 arcseconds apart. With my 12½-inch reflector and the 2.25× Barlow screwed into the turret's nosepiece, I easily saw Porrima as double with all three Orthos. The components were most cleanly split when I was viewing them with the 6 mm.

Observing Saturn through the Orthos, particularly the 10 mm, was stunning. The planet's muted butterscotch colors and bright ring system were on fine display near opposition when I was testing the Q-Turret set. I routinely spotted five of Saturn's moons even when they were close to the bright rings. Eye relief was tight with the 6-mm eyepiece, but the recessed region around the eye lens's "volcano top" let me to soak in the sharp image without smudging the field lens with errant swipes of my eyelashes.

I was particularly taken by the pure colors seen through all four of the eyepieces. The view was much "whiter" than that in several of my eyepieces made with exotic-glass elements that impart a slight yellow cast to the view. Light scatter and ghosting are also well controlled in the Baader Classic Eyepiece Set; only occasionally did I spot any reflections in the field when I moved the gibbous Moon just outside the field.

The 2.25× Barlow (sold separately for $69) is a versatile accessory. It is designed to avoid duplication of magnifications when used with the Classic Eyepiece Set, and works very well with each eyepiece except for a slight vignetting with the 32-mm Plössl. The Barlow provides the same 2.25× magnification increase when eyepieces are slipped into the Barlow barrel assembly or when the Barlow lens is threaded into the Q-Turret nosepiece. The lens also provides a modest 1.3× magnification increase when it is threaded directly into the barrel of any of the eyepieces in the set.

Top: **Two well-designed detents (arrowed) ensure precise alignment of the four eyepiece ports when each one is rotated into place. The detents also provide enough holding force to keep the Turret from rotating under the load of heavy eyepieces or cameras.** ***Bottom:*** **Little details such as threaded brass inserts molded into the turret's plastic body are an indication that the unit was designed for years of use.**

I found the Barlow to be a perfect accessory for imaging the Sun with my Coronado P.S.T. and the Imaging Source DMK 21AU618.AS video camera. Threaded into the camera's nosepiece, the lens extended the scope's focal point enough for the camera to reach to focus with only a slightly boost in image scale.

The Baader Classic Q-Turret Eyepiece Set, or any of its individual components, can fill voids in any planetary observer's arsenal of tools. ✦

After a slow summer for planetary observers, imaging editor ***Sean Walker*** *is awaiting Jupiter's return to the evening sky.*