

Astronomy & Living by Hernando

Wednesday, August 10, 2011

Baader 2.25x Barlow & Hyperion 3.5-10.5mm Zoom

A first look at new astro gear - the *Baader Hyperion Zoom Barlow 2.25x*:



Baader Hyperion Mark III 3.5-10.5mm Zoom
(with screw-on Baader Barlow 2.25x at the bottom) in 1-1/4" or 2" mode

The normally 8-24mm Hyperion Zoom/Mark III can now be converted into a high power 3.5mm-10.5mm super-zoom by attaching as nosepiece the newly released Baader Hyperion Zoom Barlow 2.25x. The barlow is said to be optically matched with the Hyperion Zoom for optimum performance.



3-piece barlow set, left to right: (B) Barlow T-2 adapter, (A) Hyperion Zoom 1-1/4" adapter, and the Hyperion Zoom Barlow - *Main Body*



The Main Body of the barlow - note the extremely curved lens at the top. This "ultimate quality" air-spaced triplet-lens, an *anastigmatic* flat-field design barlow is said to be well corrected for astigmatism, coma & spherical aberration.



Closer look at the opposite end - the field lens; *Phantom Group* coatings are the same as the zoom's, contributing to the excellent light transmission as if the barlow is invisible when in use.

While the past week was generally cloudy/rainy, I was able to briefly test the barlow on the Hyperion Zoom using an F/5.9 *William Optics* 66mm ED refractor scope on the Moon. The barlow held up really well, the Lunar image was beautiful throughout the entire focal range - very sharp and detailed. Below are tonight's Baader barlow maiden Moon shots with the Hyperion Zoom & barlow set to 10.5mm & 8.8mm:



1st light Moon imaged Aug. 10/11 (around midnight), 2011; Hyperion Zoom & Baader Barlow @ 10.5mm (37x); WO 66mm ED scope & Kodak Easyshare point-n-shoot digicam - single, afocal, hand-held shot



Moon Aug. 10/11, 2011; Hyperion Zoom & Baader Barlow @ 8.8mm (44x); WO 66mm ED scope & Kodak Easyshare point-n-shoot digicam - single, afocal, hand-held shot

Using the Zoom/Barlow combo at maximum magnification setting @3.5mm (110x), medium brightness stars remained tack sharp both on and off-axis up to the edge of the field.

On terrestrial viewing with the Baader barlow, the images were sharp, crisp and clear, as if the barlow was not there. The general impression is that the performance is similar to or at par with the well-rated [TeleVue barlows](#). Took some test shots on a billboard ad using the WO 66mm scope (388 mm focal length):



Hyperion Zoom (without barlow) @ 8mm - 48x



Hyperion Zoom (with Baader 2.25x barlow) @ 3.5mm - 110x

EDIT: Additional test shot using a Nexstar 8 SCT F/10 scope (2032mm focal length) of the same billboard ad target as in the above:



Hyperion Zoom (with Baader 2.25x barlow) @ 10.5mm - 193x on the Nexstar 8 scope (night shot)

What I like most about the Baader 2.25x barlow is that unlike regular barlows, this one is very compact. The barlow just screws on to the 1-1/4" barrel filter thread such that it's not bulky and cumbersome to use, unlike the regular barlows where the eyepiece snout is inserted onto the regular barlow tube.

There are 2 ways of mounting the Baader barlow on the Hyperion Zoom:



Baader Barlow & Hyperion Mark III Zoom with 1-1/4" sleeve unscrewed

As shown above, either the 1-1/4" sleeve filter thread (1) or the zoom's field lens snout thread (2) can be used for screw-on points.

EDIT: What's the difference between positions (1) or (2) when used as mounting points? At position (2), the barlow magnification is the official one, 2.25x. On the other hand, at position (1), which is around 6mm further away from the zoom body, the magnification is slightly higher at 2.35x.

Formula used is: $2.25 + (6\text{mm}/59.4\text{mm}) = 2.35\times$ where 59.4mm is the focal length of the barlow. Comparing the views between these two positions, I honestly couldn't tell one from the other. Both views seemed optically identical and just as sharp. On the WO 66mm refractor, the powers were 110x & 114x at the highest setting of the zoom (@8mm which converts to 3.5mm & 3.4mm at positions 2 and 1 respectively), a slim difference. Screwing-on the barlow at the filter thread is simpler and more direct, a one-step process. Very convenient if one were not using the 2" sleeve adapter of the zoom because there is no need to unscrew the knurled ring lock and 1-1/4" sleeve. But if one were to use the zoom in the 2" mode, it becomes necessary to use the field lens snout (position 2) as the mounting point to enable attachment of the 2" sleeve/adapter. Shown below are the 2 mounting options:



Left: the Baader barlow on the filter thread (position 1 - 2.35x) - one step process, just screw-on the barlow on the filter thread of the 1-1/4" adapter. Right: the Baader barlow mounted directly on the zoom's field lens snout (position 2 - 2.25x) - three steps to mount: 1) unscrew and remove the zoom's knurled ring lock, 2) unscrew and remove the zoom's 1-1/4" adapter, & 3) screw-on the barlow on the field lens snout thread.

Using extension tubes to further increase the magnification is said to be possible (I have not tried it yet) and the zoom-barlow set-up is supposed to perform well optically even with the extensions installed.

And there's more - not only can the barlow be used with the Hyperion Zoom, it can also be applied on other eyepieces as well! Attachment is through the eyepiece filter thread (1):



The Baader 2.25x barlow fitted onto a *Meade SWA 16mm* and the *Celestron 32mm plossl*; the barlow converts the two into a 7mm & 14mm respectively.

On both of the eyepieces above, the barlow worked very well too, just like the case with the Hyperion Zoom.

The barlow (B) T2-adaptor can be used for optional applications, like camera photo-projection lens 2.25x, used together with other optional parts:



Baader Barlow B-adaptor (image from the Baader barlow box)

Baader Planetarium's Baader Hyperion Zoom Barlow 2.25x is another slick innovation of modularity, a hallmark of the Hyperion line. It is a cleverly and well-thought-out design, a very handy accessory set for the Hyperion Zoom and other eyepieces as well. The make and construction is fine and well executed as can be expected of Baader products, and the optics are sharp. Based on first impressions, this barlow is looking very good. Initial test indicators are definitely positive and

promising. Further tests will be conducted as the weather allows; in the meantime, it's two thumbs-up for the Baader Hyperion Zoom Barlow!

(To see origins and previous post about the Baader 2.25x barlow, click [here](http://hyperionzoomlover.blogspot.com/2011/07/hyperion-zoom-baader-225x-barlow-2x.html)
<http://hyperionzoomlover.blogspot.com/2011/07/hyperion-zoom-baader-225x-barlow-2x.html>)

EDIT: Barlow 2-piece bolt case



This 42mm x 64mm twist & lock bolt case is a good fit for the Baader 2.25x Barlow

EDIT: Click below for other Baader Hyperion posts:

- [Full Moon: Nagler 9mm vs. Hyperion Mark III @ 8mm](#)
- [NEW Baader Hyperion Zoom 2.25x Barlow; 2x Unofficial](#)
- [Baader Modular Hyperion Tuning Rings = +3 powers](#)
- [Meade SWA 20mm 5K Series vs. Hyperion 21mm](#)
- [Hybrid Eyepiece-Telescope \(Hyperion 8-24mm Zoom\)](#)
- [Baader Hyperion Aspheric 31mm Eyepiece](#)
- [Baader Planetarium: Hyperion, Aspheric & BGO Ortho](#)
- [Hyperion TeleZoom & Lumix ZS10 MegaZoom DigiCam](#)
- [Hyperion Mark III 8-24mm Zoom DSLR Camera Adapter](#)
- [Baader Hyperion 8-24mm Zoom vs. Celestron Zoom](#)
- [1st Moon image from Nexstar 4SE scope](#)
- [Baader Hyperion Mark III 8-24mm Zoom lens count](#)
- [1st Quarter Moon & William Optics 66mmED refractor](#)
- [Hyperion Zoom T-shirt](#)
- [List of 70 Eyepieces in the stable](#)
- [Supermoon to 3rd Qtr Moon shot w/Hyperion Zoom III \(Mark III\) @ 8mm \(48x\)](#)

Posted by ibase at [4:12 AM](#)

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10 comments:

[antonino](#) said...

Hernando, you did it again! Thank you for the fresh, interesting, and thorough information, and presented so well! You make such a good case that now I can't wait to explore this new configuration further. I may have to restrain myself (literally), since I have just purchased two more telescopes, several eyepieces and three more mounts just in the last two months By the way, one of the mounts is the "half hitch". I've been lusting after it for two years, and I finally took the plunge.

[August 10, 2011 9:01 AM](#)

[ibase](#) said...

Tonino, thanks, I'm very glad that you like the review (I've added some Moon shots because the skies suddenly cleared up tonight.) Yes, I think the Baader barlow is a "must have" for owners of the Hyperion Zoom/Mark III, all the more since you have good refractors that can handle high magnifications. But of course it will have to wait considering your many recent astro purchases - wow, a "half hitch" mount, that's also in my wish list! Let me know how it handles, I'm sure you're delighted in owning one. Clear skies!

[August 10, 2011 10:08 AM](#)

Anonymous said...

Hernando, Have you tried it on your 8SE with a 2" diagonal. This looks like it will work much easier than using a TV 2X Barlow. Cant wait to hear more.

Tim

[August 10, 2011 6:15 PM](#)

[ibase](#) said...

Hi Tim! Yes I've tried it with the Nexstar 8" SCT equipped with a 2" William Optics carbon fiber dielectric diagonal and the Barlow/Hyperion Zoom (2" sleeve installed) combo works just fine in the 2" diagonal. I've edited the post above and added a test shot of the McDonald's logo ad using the C8 scope. Yes, you're right, the Baader barlow is easier to use than the TV 2x Barlow, and with a shorter profile too.

[August 11, 2011 8:32 AM](#)

Alex said...

Hi Hernando. Thank you very much for your wonderful review of this new Baader zoom barlow. I am very much thinking about purchasing this product for my Mark III zoom.

I may have missed this, but my understanding is that for a 1 1/4" fittings, you can mount the barlow to the zoom either directly onto its end thread, or to the 1 1/4" adapter sleeve which then fits into its thread. It would seem as if using the adapter would elongate the zoom more than desired. Does it aid in fitment or provide any benefits? Are there any differences in visual quality or to the specs with or without the adapter? Thanks!

[August 12, 2011 10:12 AM](#)

[ibase](#) said...

Hi Alex, thanks for the very nice compliment, I really appreciate it much and am only too happy to answer your questions as best as I can.

Your understanding of how to mount the barlow on the zoom is correct. But the difference between the 2 mounting options is only around 6mm (further away from the zoom's body at the filter thread (1) position), so it's not much really and does not unnecessarily elongate the setup as how it would seem to be.

In this regard, I've made some edits of the post above and added a pic to illustrate the mounting options. As I've mentioned in the EDIT, I honestly could not tell the difference between the 2 positions given that the magnification difference is quite small (110x vs. 114x/ 2.25x vs. 2.35x on the WO66mm refractor). Mounting the barlow on the filter thread is more convenient and direct. But it's necessary to use the end thread/field lens snout as the screw-on point if you were to use the zoom in its 2" mode. Either way it works fine as to the visual quality of the views, they are near identical. Using extension tubes to further increase the magnification is said to be possible (I have not tried it yet) and the zoom-barlow set-up is supposed to hold up well optically with the extensions.

I hope I've answered your questions to your satisfaction, if you have more of them please don't hesitate to let me know about it, thanks!

[August 12, 2011 10:06 PM](#)

Alex said...

Thanks for the explanation and use of additional figures Hernando!

I find it interesting that your calculations indicate that without the 1-1/4" sleeve the magnification is what is quoted in the official specs (2.25x) even though Baader includes the sleeve in the diagrams, oddly appearing that using it would be the normal method.

Either way, you make an excellent point that if you have a 1-1/4" fitting telescope, it is much simpler to mount the barlow directly on the zoom's lens filter thread, that way avoiding the need to unscrew the knurled ring lock and 1-1/4" sleeve. This would make it even easier to go from 8-24 to 3.5-10.5 mm in the field. Its also nice to hear that you didn't notice any visual differences with or without the sleeve and that adding extension tubes can actually increase the magnification. Thanks again- I will definitely be ordering one!

[August 15, 2011 1:37 PM](#)

[ibase](#) said...

Alex, you're most welcome, it's my pleasure really. I'm glad that I was able to answer your questions about the Baader barlow. You mentioned that "Baader includes the (1-1/4") sleeve in the diagrams" - I tried to look up the diagrams like the one in the official Baader website:

<http://www.baader-planetarium.de/sektion/s30/s30.htm>

And the diagram there does not include the 1-1/4" sleeve but rather, it's a direct mount on the field lens snout thread. Let me know what the URL address is that website/image that uses the 1-1/4" sleeve in its diagram. Thanks.

[August 16, 2011 6:18 AM](#)

Alex said...

Woops! Sorry, my bad. I got a little confused there with the pictures- it will be obvious when I have it in front of me... So by taking the lock ring off and removing the zoom's 1-1/4" sleeve, then attaching the barlow and it's 1-1/4" adapter, you have the official 2.25x magnification. Alternatively, it's nice that you can just mount it directly to the zoom's 1-1/4" sleeve and get the same image quality. This seems useful should you desire to avoid fumbling with pieces while under dark skies. Thanks again.

[August 16, 2011 9:04 AM](#)

[ibase](#) said...

You got that right Alex, thanks!

[August 16, 2011 5:50 PM](#)

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