Brief description
and possible applications
of the
BAADER HYPERION EYEPIECES

And the

HYPERION ClickStop-Zoom Eyepiece

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Brief description of the BAADER Hyperion eyepieces and the Hyperion ClickStop Zoom eyepiece

The new BAADER Hyperion eyepieces are separated into a series of eyepieces with fix focal lengths f = 3.5mm, 5mm, 8mm, 13mm, 17mm, 21mm and additionally the ClickStop Zoom-eyepiece with 8 to 24mm focal length. Additional focal lengths are under development.

The Zoom eyepiece differs in terms of configuration and possible applications from the series of eyepieces with fix focal lengths.

All eyepieces are packed separately in a soft leather bag inside a sturdy gift box. A small pack of Silica Gel Desiccant is included. The eyepieces should always be stored together with the desiccant when not in use!

01 – The series of fix focal length Hyperion eyepieces

The term "fix focal length" in this brief description is being put in quotation marks, because due to the modular design, varying focal lengths becomes possible for the user.

The Hyperion eyepieces with fix focal lengths are multifunctional. The following are the most important features:

- 1¼" **AND** 2" barrel, both with self locking safety groove
- By unscrewing the 1¼" barrel (which contains the first group of lenses), variable focal lengths may be achieved by adding our Finetuning Rings.
- A M48 thread is located between the 1¼" and 2" barrel, to be able to insert a 2" filter
- All eyepieces are suitable for afocal and classical eyepiece projection

01.1 – Extension of focal lengths and insertion of 2" Filters

The Hyperion eyepieces must only be opened at one certain joint, disassembling the eyepiece elsewhere will void the warranty! This joint is the M48 filter-thread at the upper end of the 1¼" barrel. 1¼" filters are screwed into the barrel – as usual.

All other construction joints are secured with a loctite and can only be opened by brute force.

Care must be taken to avoid allowing dust or other contaminants to enter the eyepiece during this operation.

The first group of lenses is located inside the chrome-plated 1¼" barrel. If this part of the eyepiece is being removed and the eyepiece is mounted inside a 2" barrel directly, consequently the focal length of the eyepiece changes. The same happens if a 2" filter is inserted between the 2" and 1¼" barrel (as shown in the illustration above). The following table details the resulting focal lengths:

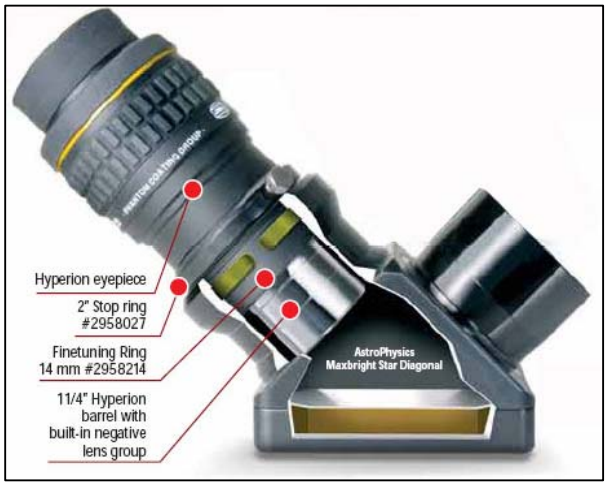
Effective focal lengh in mm		∅ Field-stop mm	with 14 mm FTR		with 28 mm FTR		with 14 + 28 mm FTR		with 2" Baader Filter*		without first group of lenses	
Hyperion	21.0	22.5	17.6	19.9	15.5	17.5	14.0	15.8	18.5	20.6	32.2	35.0
Hyperion	17.0	20.9	13.1	17.1	10.8	14.1	9.2	12.1	14.6	18.7	21.8	30.0
Hyperion	13.0	17.7	10.8	14.6	9.2	12.5	8.1	11.0	11.7	14.2	22.9	30.0
Hyperion	8.0	10.7	6.0	8.6	5.0	7.1	4.3	6.1	6.9	9.3	21.8	30.0
Hyperion	5.0	6.5	4.0	5.4	3.2	4.5	2.6	3.9	4.3	5.8	22.5	30.0
Hyperion	3.5	4.3	2.5	3.5	2.1	2.9	1.8	2.5	2.9	3.7	21.8	30.0

Inside the blocks marked with rectangles, the first white column states the original focal length of each eyepiece. The second white column is the focal length of the eyepiece with a 2" eyepiece filter mounted between the front part of the eyepiece and the main body. The third white column details the focal length of the individual eyepieces with the first group of lenses completely removed.

Additional, the focal length may be modified by using the Baader Finetuning Rings (FTR) with 14- and 28mm height. The focal lengths that may be achieved in this way can also be drawn from the middle part of the table above.

A further accessory for our Hyperion eyepieces is the 2" Stop Ring. It is to be used when observing with a 2" mirror or prism star diagonal and prevents the 1¼" eyepiece barrel from hitting and damaging the mirror star diagonal or prism, whenever additional Finetuning Rings are lengthening the original eyepiece body.

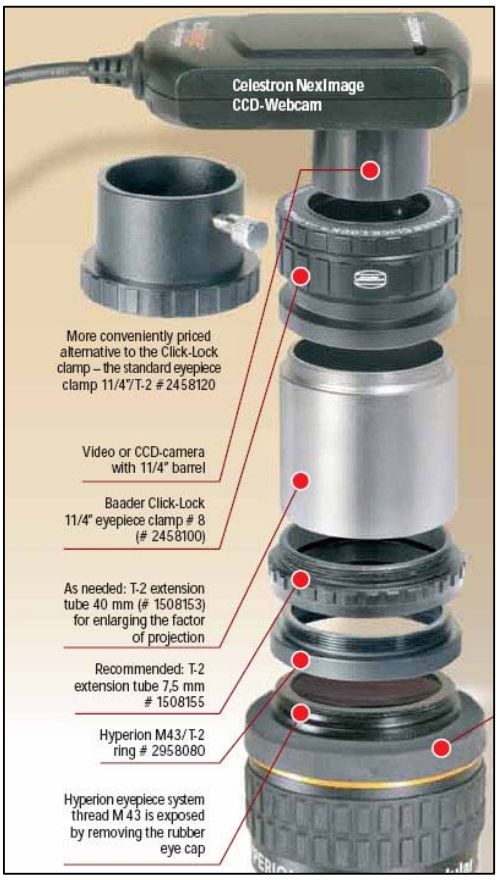
The illustration on the left demonstrates the combination of a Hyperion eyepiece, with 14mm Finetuning Ring, 2" Stop Ring and Astro Physics 2" Maxbright Star Diagonal mirror.



01.2 – The Hyperion eyepieces with fix focal lengths as projection eyepieces

The Hyperion mechanical design incorporates two System-Threads on the upper end. To reveal them, the rubber eyecap and/or the large thread protecting ring (made of silicone) have to be removed. The threads are: (1) M43 male thread and (2) M54 male thread:

The M43 thread serves for adaptation of T-2 accessories for classical eyepiece projection. A stepper ring from M43 onto T-2 thread (Hyperion M43/T-2 #2958080) is to be used in this case.



The view on the left side demonstrates a possible combination for classical eyepiece projection for webcams. The parts are as follows (from the bottom up):

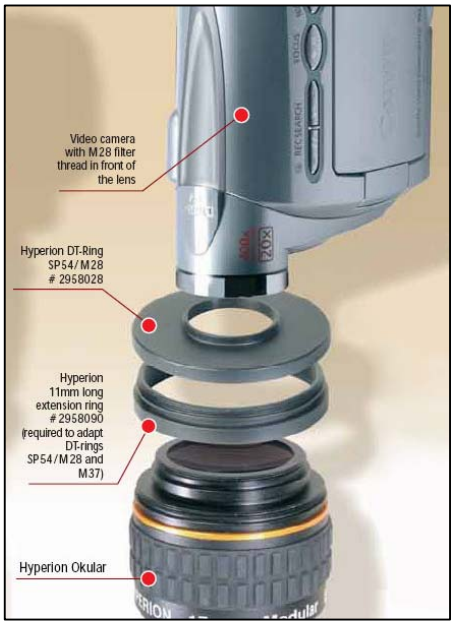
- Hyperion eyepiece
- Hyperion M43/T-2 Ring (#2958080)
- Recommended: T-2 extension tube length 7.5 mm (#1508155)
- Optional: T-2 extension tube 40 mm (#1508153) for further enlarging the projection magnification

Any T-2 camera-ring with a SLR camera or DSLR-camera may be adapted here.

- Baader Click-Lock 1¼" eyepiece clamp (#2458100) or alternatively the simpler and more conveniently priced standard eyepiece clamp 1¼"/T-2 (#2458120)

The system thread 2 (M54) is to be used for adaptation of a digital camera or video camera where the objective cannot be removed (so-called afocal projection).

The illustration below shows the modular fix-up by means of the adaptation of a video camera with a M28 Front-filter-thread.



From the bottom up:

- Hyperion eyepiece
- Hyperion 11mm long extension-ring, (#2958090, required to adapt DT-rings SP54/M28 and M37),
- Hyperion DT-Ring SP54/M28 (#2958028),
- Video-camera with M28 filter thread in front of the lens

On our website:
http://www.alpineastro.com you can find further information regarding all available adapter-rings for corresponding filter threads in objective threads of different cameras.

01.3 – Hyperion fix-focal-length eyepieces at the Zeiss Diascope Fluorite-Spotting Scope

The Hyperion eyepieces 24/21/17/13 and 8mm may be used on any Zeiss Diascope Spotting Scopes. In this case, a Baader Diascope bayonet eyepiece adapter 1¼" (#2454500) is required. This

adapter allows you to attach 1¼" Astro-eyepieces to Zeiss Diascope Spotting Scopes. It is pushed onto the 1¼" barrel of the Hyperion eyepiece and held in this position by means of three small locking screws which are locking down on a bronze clamp ring to not mar the eyepiece.

02 – The Hyperion ClickStop Zoom eyepiece with 1 ¼" and 2" nose piece

The Hyperion Clickstop Zoom features a continuously variable focal length with

stops at fl8/12/16/20/24mm.

The Clickstop Zoom features a removable 1¼" chrome sleeve and adapter thread for (most) Synta Spotting Scopes using the M35 standard thread. Also the M35 thread can be removed from the eye-piece to release a 45mm x 0.5 thread fitting all Carl Zeiss Diascope Spotting Scopes. Additionally a 2" sleeve is now included with each Zoom, to replace the standard 1 ¼" sleeve.

The illustration above shows the different features of the Hyperion Zoom eyepiece as detailed in the text above.

The system thread M54 for adaptation of digital cameras for afocal eyepiece-projection is located underneath the rubber eyecup, which just has to be pulled off, to uncover the thread. The illustration on the left side indicates the function of the adjustable eyecup. On the left hand side, it is completely retracted, whereas the right image demonstrates the maximum distance to the eye lens. To adjust it, the rubber ring has to be turned firmly.

02.1 – Adaptation of the Zoom eyepiece onto Telescopes and Spotting Scopes

At telescopes, the Zoom eyepiece may be adapted in the conventional way by using the 1¼" barrel or 2" barrel. All conventional 1¼" and 2" eyepiece filters will fit onto the female thread of the chrome-sleeves.

Synta- and Celestron Spotting Scopes

For adaptation of the Hyperion Zoom eyepiece onto Synta- and Celestron Spotting Scopes, the 1¼" chrome-sleeve has to be removed. Hold the eyepiece at the knurled locking nut and the narrow (also knurled) ring threaded into it. Now the eyepiece may be threaded onto Synta (et all) Spotting Scopes by means of the M35 thread.

Carl Zeiss Diascope Spotting Scope

For adaptation of the Hyperion Zoom eyepiece onto a Carl Zeiss Diascope Spotting Scope, first remove the chrome-plated 1¼" nosepiece and second the M45/M35 adapter ring to release the M45x0.5 pitch female thread on the Zoom to connect it onto the M45 male thread of the Zeiss Spotting Scope.

The illustration below demonstrates the situation of the M45 thread inside the knurled locking nut.

The Hyperion Zoom is to be placed onto the M45 outer thread of the ZEISS-Spotting Scope and tightened by turning the eyepiece including the locking nut in clockwise direction. When the locking nut sits tight, the eyepiece still may be turned to adjust the position of the index mark

02.2 – The system thread M54

After removing the stray-light shield, the M54 system thread is exposed. It serves for adaptation of digital cameras and analogue or digital SLR-cameras for afocal and classical eyepiece-projection. Please refer to the main color manual to see the many adaptation options for the M54 thread.

For example: with our SP54/T-2 (#2958085) adapter-ring, a spacer-tube (#1508153) and the classical T-2 camera-adapter, (almost) any analogue- or digital reflex-camera may be adapted onto the eyepiece.

03.1 – Hyperion Zoom used for Afocal Projection

03.2 – Hyperion Zoom used for classical Eyepiece-Projection

Comparison Zeiss Photoadapter / Baader Hyperion Zoom-Okular:

Zeiss Diascope TFL # 528015 with Zeiss Photoadapter # 528030 – results only **one** enlargement

Zeiss Diascope TFL # 528015 with Baader Hyperion Zoom-eyepiece # 2454824, T-2 Quick Changer (T2# 6/7) # 2456321 and Hyperion Zoom T-Ring SP54 / T-2 # 2958085 – results **5** different enlargements!

24 mm
focal length

20 mm
focal length

16 mm
focal length

12 mm
focal length

8 mm
focal length

For further information please require your copy of the Hyperion 6-page instruction manual:

For further information regarding our digital T-2 adaptations, please visit:
http://www.baader-planetarium.de/zubehoer/mechadap/digi-t2.htm

For further information regarding our classical T-2 adaptation-system, please visit:
http://www.baader-planetarium.de/neue_produkte/zeiss/diascope-start.htm

For further, detailed information regarding our Hyperion eyepieces, please visit:
http://www.baader-planetarium.de/zubehoer/okularseitiges_zubeh/okular.htm#hyperion

For two pdf-files (as downloads) that further explain and graphically demonstrate all features and possibilities of the Hyperion eyepieces, please visit:
http://www.baader-planetarium.de/download/hyperion_allgemein.pdf
http://www.baader-planetarium.de/download/hyperion_projektion.pdf

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