DIGISCOPING

An overview of the common camera adaptations and necessary adapters for afocal photography and eyepiece projection with spotting scopes and telescopes

EXAMPLE

AFOCAL PHOTOGRAPHY

EXAMPLE

EYEPIECE PROJECTION

Adaptation of Cameras (Compakt & System/DSLR) with Front-Filter-Thread using either M43- or SP54-Thread

Compact cameras and system cameras which provide a front-filter thread can be attached firmly and without risk of tilting to eyepieces with M43- or SP54-threads. Cameras with M43-thread can also be attached directly; the M43-extension rings prevents the lenses from colliding.

This kind of photography works better with tele- than wide-angle-lenses. It works better if the camera lens is smaller than the lens of the eyepiece. Wide-angle-eyepieces like Morpheus® or Hyperion® are perfect for afocal projection photography.

$$\text{Equivalent focal length} = \frac{\text{Magnification of the eyepiece}}{\text{Focal length of camera lens}}$$

Adaptation of a DSLR to a Morpheus®-eyepiece

Adaptation of a compact camera with M43-thread to a Morpheus®-eyepiece

M82

Stepper-Ring M72/M82
 # 2958082

M67 **M72** **M77**

Stepper-Ring M62/M67
 # 2958067

Stepper-Ring M62/M72
 # 2958072

Stepper-Ring M62/M77
 # 2958077

M28 **M37** **M46** **M49** **M52** **M55** **M58** **M62**

SP54/M28 DT-Ring
 # 2958028
(requires *# 2958090*)

SP54/M37 DT-Ring
 # 2958037
(requires *# 2958090*)

DT-Ring SP54/M46
 # 2958046

DT-Ring SP54/M49
 # 2958049

DT-Ring SP54/M52
 # 2958052

DT-Ring SP54/M55
 # 2958055

DT-Ring SP54/M58
 # 2958058

DT-Ring SP54/M62
 # 2958062

One adjustment spacer ring made of hard plastic for the SP 54 thread is part of each Hyperion DT-ring free of charge. With these spacer rings (each ring has a thickness of only 1 mm), differences in mechanical heights may be adjusted, to be able to adapt the camera front lens as close as possible, without having to use the 11 mm extension ring (*# 2958090*).

Caution when mounting the camera! Camera-front lenses may be too close to the first lens of the eyepiece only by a tenth of a millimeter. When mounting an eyepiece onto any camera-front-lens, always proceed with the greatest care, possibly using the additional spacer ring. Also make sure that there is not too much weight on the camera lens, to prevent the autofocus-mechanic from damage.

SP 54i/SP 54a Hyperion® Extension Ring, 11mm, with threaded protective flap for the SP54 external thread
 # 2958090

M43

Hyperion® / Morpheus® M43 Extension *# 2954250* to adapt lenses with M43-thread – protects the lenses from touching each other

Hyperion® Zoom M43/ SP54 Adapter
 # 2958086

Morpheus® M43/SP54-Adapter
 # 2954251

SP54 / M43

Hyperion® 68° / Hyperion® Aspheric eyepiece with fixed focal length, with M43 and SP54-threads

M43

Hyperion® Universal Zoom Mark IV, 8-24mm Eyepiece
 # 2454826

M43

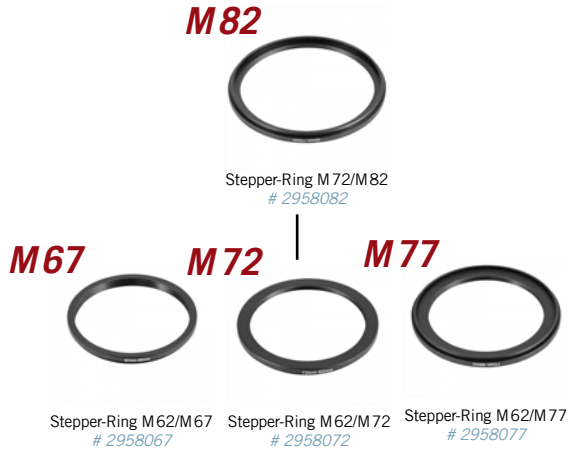
Morpheus® Eyepiece with M43-thraed

Adaptation of Cameras (Compakt & System/DSLR) with Front-Filter-Thread using the T-2-Thread

The eyepieces of many spotting scopes are equipped with a T-thread instead of the larger M43-thread. Use the DT-Adapter II to connect the SP54-Rings even with these eyepieces, as described on the previous page.

This kind of photography works better with tele- than wide-angle-lenses. It works better if the camera lens is smaller than the lens of the eyepiece.

$$\text{Equivalent focal length} = \frac{\text{Magnification of the spotting scope}}{\text{Focal length of camera lens}}$$



SP 54i/SP 54a Hyperion® Extension Ring, 11mm, with threaded protective flap for the SP54 external thread
2958090

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DT-Adapter II
T-2 / SP54a expanding adapter T-2
2458040

T-thread

Tip: If an eyepiece has both M43- and SP54-threads, you should better use an SP54-adapter, as described on the previous page.

Hyperion® / Morpheus® T-adapter M43/T-2
2958080

Eyepiece with T-thread, e.g. included with many Celestron spotting scopes

Morpheus®/Hyperion® eyepiece with M43-thread

Adaptation of Camera Bodies (System-/DSLR-Cameras) with T-Adapter using either T- or M43-Thread

Camera bodies can be attached directly to eyepieces which are equipped with a T-thread. But to get an image which is sharp even in the corners, the front of the T-ring should be placed in a distance of 40 mm (full-frame camera), 30mm (APS-C) or 15mm (Micro 4/3) to the eyepiece. The equivalent focal length compared to 35mm is calculated as follows:

$$f_{equivalent} = f_{spotting\ scope} \times ((a/f_{eyepiece})-1)$$

$f_{spotting\ scope}$ = *Focal length of spotting scope.* ***a*** = *Distance between sensor and eyepiece* ***incl. 55 mm T-2-flange-back****. E.g. a 40mm extension gives a distance of 95mm.* $f_{eyepiece}$ = *Focal length of eyepiece.*

Available T-2-extensions

T-2 extension 40mm (T-2 part #25B) # 1508153

T-2 extension 15mm (T-2 part #25A) # 1508154

T-2 extension 7,5mm (T-2 part #25C) # 1508155

VariLock 29 – variable, 20-29mm # 2956929

VariLock 46 – variable, 29-46mm # 2956946

Available T-Rings:

#2408319 ***Canon EOS*** | *#2408302* ***Pentax-K*** | *#2408330* ***Micro Four Thirds*** | *# 2408329* ***Four Thirds*** | *#2408328* ***Minolta AF*** *(for Minolta Maxxum and Minolta/Sony Alpha)* | *#2408321* ***Olympus*** | *#2408300* ***Nikon*** | *#2408317* ***Sony E/NEX*** | *#2408301* ***M42 x 1 (Praktika/Pentax-S)*** | *#2958550* ***Protective CANON DSLR-T-Ring T-2/M48 and 2"*** *(with / without filter)*

Vollformat

Camera-dependent T-Ring 55 mm flange-back

APS-C

Camera-dependent T-Ring 55 mm flange-back

Micro 4/3

#2408330 MFT-Adapter 55 mm flange-back

Extension: 40 mm

#1508153 40mm extension

Extension: 45 mm

#1508154 15mm extension

#1508154 15mm extension

#2456322 Quick Changer

Extension: 30 mm

#1508154 15mm extension

#1508154 15mm extension

Extension: 30 mm

#1508154 15mm extension

#2456322 Quick Changer

Extension: 15 mm

#1508154 15mm extension

Extension: 15 mm

#2456322 Quick Changer

Hyperion® / Morpheus® T-Adapter M43/T-2 *# 2958080*

Eyepiece with T-thread, e.g. included with many Celestron spotting scopes

Morpheus®/Hyperion® Wide-angle eyepiece with M43-thread

T-2 Quick Changers

The T-2-Quick Changing System with an optical height of 15mm concists of a dovetail with male T-2-thread and quick changer ring. The ***TQC / TCR Heavy duty T-2 Quick Changing System*** *#2456322 has got a Zeiss-compatibe lock even for very heavy accessories, while the cheaper* ***T-2 Standard Changer System*** *#2456321 uses a M4-locking screw with a rounded tip.*

Standard T-2-Quick-Changer

TCR T-2 Hardened Steel Change Ring with Zeiss micro bayonet

TQC Heavy Duty T-2 Quick-Changer

Adaptation of Solar System Imagers or Video Modules with a T-Adapter

To image the planets through a telescope, you need a video module, which can capture many images in a short time, as well as a telescope with a long focal length. Cameras with small pixels require only a 2x- or 3x-Barlow; for even higher f-ratios, eyepiece projections is a common method. The equvalent focal length is calculated as described on the previous page as:

$$f_{equivalent} = f_{telescope} \times ((a/f_{eyepiece})-1)$$

The perfect f-ratio depends on the pixel size of the camera. It is calculated as $N \leq d_{pixel}/0{,}28$. N is the number of the f-ratio and d_{pixel} is the length of the edge of the camera's pixels.

Adapting to a Camera Lens:

Use these adapters to attach cameras with a C-Mount-thread directly to camera lenses with Nikon-, Canon- or Pentax-S-bajonet:

 # 2958525 C-Mount Canon EOS

 # 2958535 C-Mount Nikon

 # 2958530 Special C-Adapter for the old Pentax-S (= T-1) thread

1¼"

Video modul/ solar system imager with 1¼" nosepiece, z.B. Celestron Skyris

 # 2458100
ClickLock Eyepiece Clamp 1¼" with diopter-adjustment

 # 2458125
Focusing Eyepiece Holder 1¼"

C-Mount

Video modul/ solar system imager with C-Mount-thread, z.B. Celestron Skyris

#2958520
1" C-Mount T-2 adapter with integrated 1¼" Filterholder

#2958520I
1" C-Mount T-2 adapter with mounted UV/IR Cut Filter

T-2

#1508153
40mm T-2 extension

#1508154
15mm T-2 extension

#1508155
7,5mm T-2 extension

#2956946
Varilock 46 variable extension, 29-46mm

#2956929
Varilock 29 variable extension, 20-29 mm

OPFA
Eyepiece Projection adapter for eyepieces with an outer diameter of up to 38mm.

Telescope-sided connection:
 # 2458141 – 1¼"
 # 2458142 – 2"
 # 2458143 – 2" SC-thread
 # 2458144 – T-2 inner thread
 # 2458145 – M44 Zeiss thread
 # 2458146 – M43 Vixen thread
 # 2458147 – M36,4 Vixen/TAK/ Lichtenknecker

M43

Hyperion® / Morpheus® T-Adapter M43/T-2
 # 2958080

Eyepiece with M43-thread, e.g. Morpheus® or Hyperion®

For eyepieces without thread:

At telescopes, the OPFA gives you the option to use eyepieces with an outer diameter of up to 38 mm for eyepiece projection. The T-ring of the camera can be connected directly to the T-2-thread.

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