

INSTRUCTION MANUAL

Orion® 2" Variable Field Flattener for Short Refractors

#5745



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Customer Support:

www.OrionTelescopes.com/contactus

Corporate Offices:

89 Hangar Way, Watsonville CA 95076 - USA

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The Orion 2" Variable Field Flattener (VFF) for Short Refractors flattens the focal plane for astro-imaging without affecting the focal length of the telescope. It is designed to work with refractors of 400mm to 660mm focal length and f/5 to f/6 focal ratios. While the optics have an optimal backfocus distance of 55mm, the housing of this unique flattener is adjustable in length, allowing the mechanical backfocus to be precisely set to accommodate cameras with different flange-to-sensor distances, often without the need for spacers, or extension rings to reach the 55mm optimal backfocus. Once the mechanical backfocus distance is set, a rigid locking mechanism ensures zero flexure without slippage for rock-solid imaging performance. You can even adjust the VFF spacing without removing attached cameras and other imaging accessories.

Fully multi-coated, two-element Ohara glass optics and a glare-reducing threaded interior ensure maximum image fidelity and contrast. The machined aluminum housing of the VFF features a tapered 2" barrel that fits in 2" telescope focusers. It is threaded for use with 2" imaging filters.

Interchangeable 42mm and 48mm Attachment Plates

The VFF comes with two camera-side thread-on attachment plates, one with a standard male "T"-thread (42x0.75mm), the other with a wider, M48 (48x0.75mm) male thread. The M48 attachment plate is recommended for cameras with full-frame sensors, to reduce the possibility of vignetting. For DSLR cameras, you will need a T-ring – either a standard 42mm ring or a wide 48mm ring – for your particular camera model to couple it to the VFF.

Attaching the Field Flattener to a DSLR Camera

With a T-ring installed on your camera, thread on the VFF. Set the millimeter scale on the VFF to 55mm, which is the optimal flange-to-sensor spacing for many DSLR cameras with an attached T-ring. If your images are not perfectly sharp, the optimal flange-to-sensor distance for your DSLR with T-ring attached may be slightly different from 55mm. In that case you can experiment with fine-tuning the length of the VFF while the camera is still attached, until the stars appear perfectly sharp.

Attaching the Field Flattener to a CCD Camera

Most CCD cameras have a shorter flange-to-sensor distance than the 55mm of a DSLR camera. Consult your camera's manual to determine the flange focal distance for your particular camera. Depending on what other accessories you add to the imaging train, such as a filter wheel and/or an off-axis guider, you will likely need to add spacing to fill the 55mm of required backfocus distance of the VFF. Once you calculate how much spacing is needed, extend the VFF housing by the appropriate amount, using the engraved millimeter scale for reference.

For example, let's say your CCD camera has a flange-to-sensor distance, or backfocus, of 19mm, i.e., its focal plane is 19mm behind the mounting flange. And between the camera and the VFF you've got a filter wheel with a mechanical length of 25mm. That's a total of 44mm. The camera's sensor would be 11mm too close (55mm – 44mm) to the VFF, so you must rotate the housing of

the VFF to add 11mm of length. Start at the 55mm mark on the millimeter scale and rotate the housing to the 66mm mark. Then turn the locking thumbscrew clockwise until it's tight. You're done! No extension rings needed. And if needed you can make fine adjustments to the VFF's length to "dial in" the perfect backfocus without removing the camera or filter wheel.

Care & Maintenance

Care should be exercised when using all optical and mechanical telescope accessories. Keep your VFF in a protected environment when you're not using it, and place the dust cap and threaded metal cap on the VFF for storage. Avoid touching the lenses and coatings. If the outside of the lens should become dirty, you may want to clean it. Blow off all loose dirt with a blower bulb. Use only optical lens tissue and good-quality lens fluid. Wet a folded tissue and gently wipe the surface of the lens. Immediately use a second piece of lens tissue to gently dry the lens off. Do not rub or apply pressure, as this may scratch the lens if dust or grit is present.

Specifications

Optics	2-element, fully-multicoated
Focal Length	55mm (backfocus)
Adjustability	55mm – 80mm
Compatibility	Refractors of 400-660mm focal length (f/5 to f/6)
Camera-side mounting	Interchangeable thread-on plates: 42mm (42x0.75) male "T"-threads 48mm (48x0.75) male threads
Filter threads	Threaded for 2" imaging filters
Clear Aperture	50mm
Barrel:	2", tapered neck
Weight	12 oz. (340g)

One-Year Limited Warranty

This Orion product is warranted against defects in materials or workmanship for a period of one year from the date of purchase. This warranty is for the benefit of the original retail purchaser only. During this warranty period Orion Telescopes & Binoculars will repair or replace, at Orion's option, any warranted instrument that proves to be defective, provided it is returned postage paid. Proof of purchase (such as a copy of the original receipt) is required. This warranty is only valid in the country of purchase.

This warranty does not apply if, in Orion's judgment, the instrument has been abused, mishandled, or modified, nor does it apply to normal wear and tear. This warranty gives you specific legal rights. It is not intended to remove or restrict your other legal rights under applicable local consumer law; your state or national statutory consumer rights governing the sale of consumer goods remain fully applicable.

For further warranty information, please visit www.OrionTelescopes.com/warranty.

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