INSTRUCTION MANUAL

ESPRIT 100EDX



Sky-Watcher®
Be amazed.

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Introduction

The spirit of perfection, by Sky-Watcher

Designed with the discerning astronomer in mind, Sky-Watcher top-of-the-line Esprit refractors deliver the kind of imaging performance one would expect from telescopes costing much more. With their three-element air spaced objective lens design, false color is completely eliminated, yielding exceptional contrast and sharpness.

Quick overview:



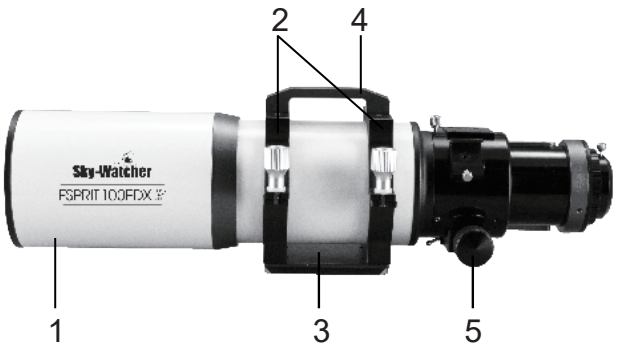
- 100 mm apochromatic, 3-element refractor
- 550 mm (f/5.5)
- Metallic high-transmission lens coatings
- 3" CNC machined 1:11 dual-speed focuser
- Zero color fringing even on bright objects
- 40 mm image circle
- Knife-edge Baffled Optical System
- Tube rings with dovetail D (Losmandy style) bar
- Aluminum foam lined case
- Full frame corrected focal plane



- NEVER USE YOUR TELESCOPE TO LOOK DIRECTLY AT THE SUN. PERMANENT EYE DAMAGE WILL RESULT.
- NEVER USE AN EYEPIECE-TYPE SOLAR FILTER.
- NEVER USE YOUR TELESCOPE TO PROJECT SUNLIGHT ONTO ANOTHER SURFACE; THE INTERNAL HEAT BUILDUP WILL DAMAGE THE TELESCOPE OPTICAL ELEMENTS.
- USE A PROPER SOLAR FILTER FIRMLY MOUNTED ON THE FRONT OF THE TELESCOPE FOR VIEWING THE SUN.
- WHEN OBSERVING THE SUN, PLACE A DUST CAP OVER YOUR FINDERSCOPE OR REMOVE IT TO PROTECT YOU FROM ACCIDENTAL EXPOSURE.
- NEVER LET A TELESCOPE POINTING THE SUN UNATTENDED.

Getting started

Parts description



1. dew cap
2. Tube rings
3. D (Losmandy) dovetail bar
4. Handle
5. 3" 1:11 dual-speed focuser

Cooling the telescope

Telescopes require time to cool down to outside air temperature. This may take longer if there is a big difference between the temperature of the telescope and the outside air. This minimizes heat wave distortion inside telescope tube (tube currents). Your telescope would require at least 20 minutes cooling off to outside conditions. Tip: use this time for planning your session and mount accessories.

Using the telescope for prime focus imaging



Before installing the field flattener onto the drawtube of the focuser, the 2" ring adaptor **(2)** needs to be unscrewed and removed.

In order to easily unscrew the ring, hold with one hand the ring **(1)** at the end of the drawtube and then unscrew the 2" ring adaptor **(2)** with the other hand.

The Sky-Watcher ESPRIT 100 Field flattener has been specifically designed for your telescope. It guarantees excellent field flatness across the entire 40 mm imaging plane and ensures full illumination with extremely minimized halation and zero color fringing even on bright objects.

No "universal" field flattener available on the market will deliver the premium results achieved with the Sky-Watcher ESPRIT 100 Field flattener which is designed exclusively for this telescope.

The field flattener needs to be purchased separately by the user.

Installing the field flattener and a DSLR (Digital Single-Lens Reflex) camera

Note: Inside the box the 8mm ring spacer* (3) *is assembled with the field flattener body* (2)*. When assembled, the two parts may look as if there were only one piece. When taking pictures with a DSLR camera it should stay assembled.



1. Screw the drawtube adaptor **(1)** at the end of the focus tube.
2. Screw the field flattener **(2)** onto the drawtube adaptor **(1)**.
3. If not yet done, screw the extender tube **(3)** onto the field flattener **(2)**.
4. Screw the enlarged 48mm T-Ring **(4)** onto the extender tube **(3)**.

The enlarged 48mm T-Ring may not be included with your telescope and should match your DSLR camera's manufacturer and model. Please check with your reseller to get the correct 48mm Enlarged T-Ring for your DSLR camera.

5. Install your DSLR camera on the 48mm enlarged T-Ring (4).



In order to get the premium results the field flattener for ESPRIT 100 can deliver the distance between the last lenses to the sensor should be exactly 69.8mm. This distance is called the field flattener "back focus".

The rings are designed to provide 69.8mm of back focus with any DSLR camera. Modifications to this layout, i.e. by adding a radial guider, will lead to blurry stars images in the field edges.

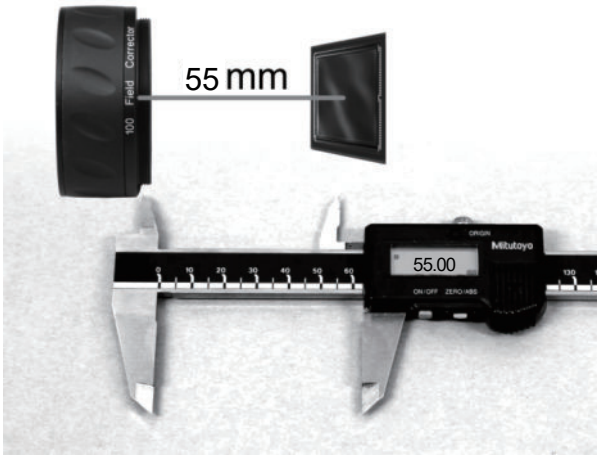
Installing the field flattener and a CCD (Charge-Coupled Device) camera

Installing an astronomical CCD camera and its accessories (filter wheel, radial guider…) behind the field flattener is not as straightforward as installing a DSLR camera. All DSLR cameras have the exact same distance from the front side of the T-Ring adapter to the sensor, thus share the same extension rings to ensure the 69.8mm back focus distance.

CCD cameras differ from one model to another, even in the same brand name, by the threads used and the body-to-sensor distance. Accessories also have different possible threads and depths, thus the combination of a CCD camera and its accessories can have any total length and any coupling thread.

A custom coupling ring is needed in order to assemble the CCD camera and its accessories (called the "optical train") to the telescope's field flattener. The custom ring should be machined* to have:

1) A female M66x1 thread, to screw and secure the ring to the field flattener exit.
2) A thread compatible with the first component of the optical train.
3) A length to ensure that the distance from the last lenses of the field flattener to the CCD sensor is exactly 69.8mm.



The 55mm distance is measured from the edge marking the start of the male thread on the field flattener, to the CCD sensor (see picture on the left).

Most CCD cameras have also the distance from their body thread to CCD sensor noted in the manual, thus evaluating the length of the custom ring you need can be precisely evaluated.

* Refer to your local dealer about custom ring supply.

Installing the field flattener and a CCD camera - continued



1. Screw the drawtube adaptor **(1)** at the end of the focus tube.
2. Screw the field flattener **(2)** onto the drawtube adaptor **(1)**.
3. Screw the custom ring **(3)** onto the field flattener **(2)**.

> The custom ring needs to be sturdy enough to secure the optical train to the field flattener.

4. Screw your optical train to the custom ring **(3)**.

Focusing



- Make sure the locking lever below the focuser **(1)** is unlocked (position as shown in picture).
- Slowly turn the focus knobs **(2)** one way or the other, until the image in the eyepiece is nearly sharp.
- To finely focus the image turn the 1:11 knob one way or the other until the image is perfectly sharp **(3)**.
- Lock the screw below the focuser **(1)** if a heavy load is attached (pull the lever at 90°).

The image usually has to be finely refocused over time, due to small variations caused by temperature changes. This often happens when the telescope has not yet reached outside temperature.

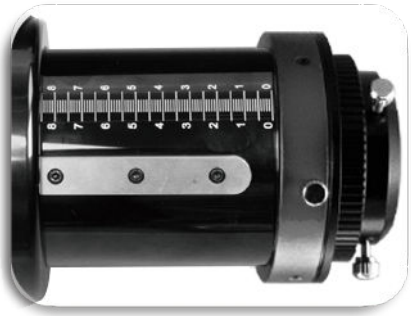
Useful tips for all observations



Removing the finder scope

During an observation, when the desired target is acquired, it is possible to remove the finder scope from its support. When needed the finder scope can be inserted again.

This can be useful when the observer's head is in a position where the finder scope becomes an obstacle to observation.



Using the indexed scale

The indexed scale on the focuser drawtube gives an accurate indication on the focus position for various accessories.

Once the position for one accessory is known it is very easy to approximate the focus position.

Due to the precision needed to reach perfect focus a fine tuning is advised.



Rotating diagonal ring

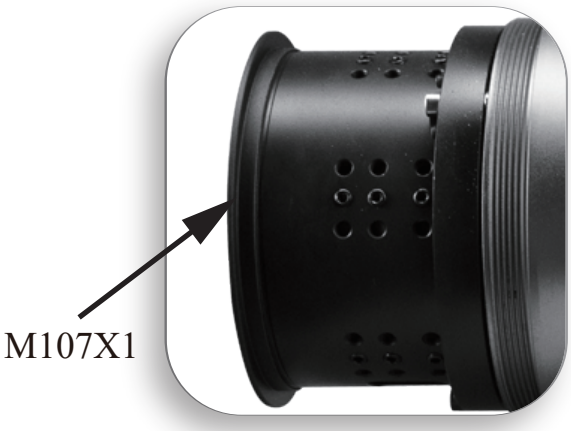
Loosen the screw **(1)** to rotate the diagonal ring



Rotating the focuser

The whole focuser body can be rotated. It is useful when the focuser knobs aren't in a convenient position.

1. Remove all accessories from the focuser.
2. Fully retract the drawtube inside the focuser body.
3. Loosen the screw **(2)** .
4. Rotate the focuser body.
5. Lock the screw **(2)** .



How to use the thread in the front of objective lens cell

Remove the dew shield and a section of the M107x1 thread will be exposed at the front end of the objective lens cell. It can be used for attaching accessories, such as filters.

Specifications

Telescope specifications

Optical Design	*Refractor (air-spaced triplet APO)*
Aperture (mm)	100 mm (3.94 in)
Focal Length	550 mm (21.65 in)
Focal Ratio	5.5
Tube Rings	With 3" (D Style) dovetail plate
Highest Useful Magnification	236 x
Lowest Useful Magnification	14 x
Limiting Stellar Magnitude	12.5
Resolution (Rayleigh)	1.39 arc seconds
Resolution (Dawes)	1.16 arc seconds
Light Gathering Power (Compared to Human Eye)	204 x
Optical Coatings	Fully multi-coated
Optical Tube Length	56 cm (22 in)
Optical Tube Weight	7.25kg (16 lbs)
*Telescope Visual Backfocus**	>185mm (6.3 in)

Threads specifications



Rings/ Threads	Focuser Tube	Enlarged T-Ring
In Ø	n/a	M48x0.75 F.
In screw depth	n/a	variable
Out Ø	M74 x1 M	Camera
Out screw depth	6 mm	n/a

* The visual back focus of the telescope is the distance from the end of the focuser tube (with 2'' adapter installed) to the focal plane. This means, all accessories needing 185mm back focus or less can be installed.



We want to ensure that your experience with a Sky-Watcher product is the best it can be. To make that happen we have a comprehensive technical and customer support available, alongside with the list of distributors and dealers worldwide, on our worldwide internet site:

http://www.skywatcher.com

Sky-Watcher offers this product with the best available quality in accordance with the legislation of the local market, and reserves the right to modify or discontinue, without prior notice to you, any model or style telescope.