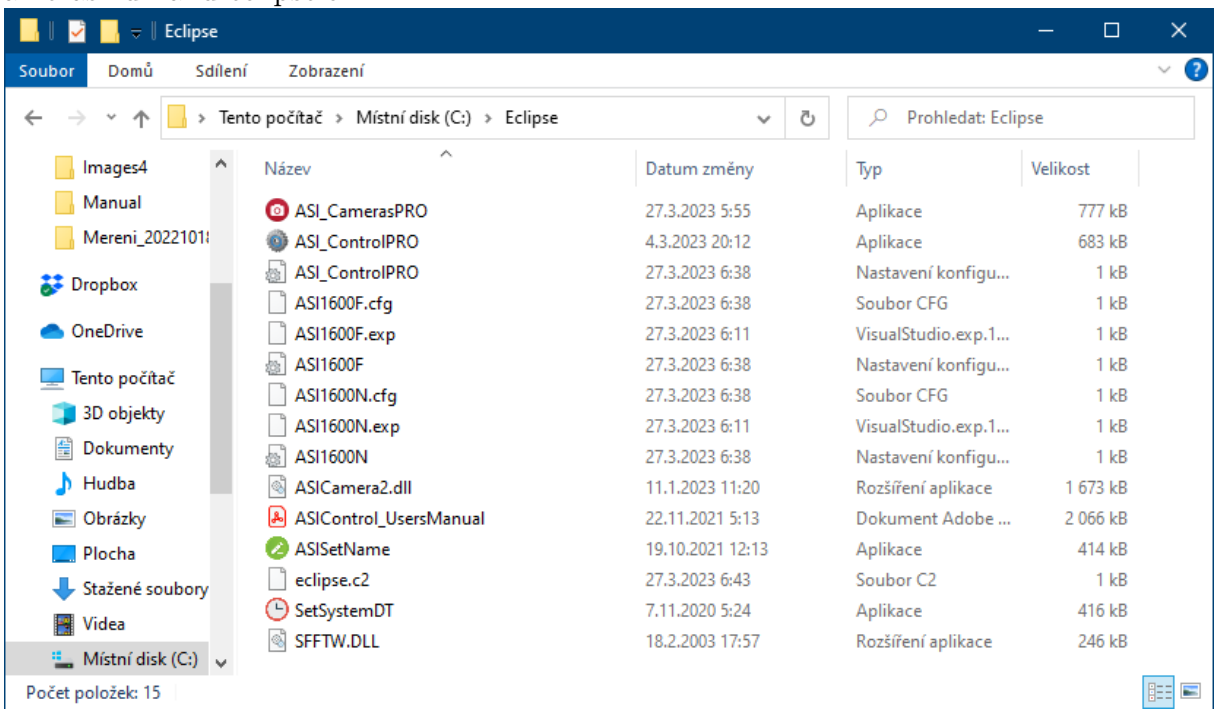
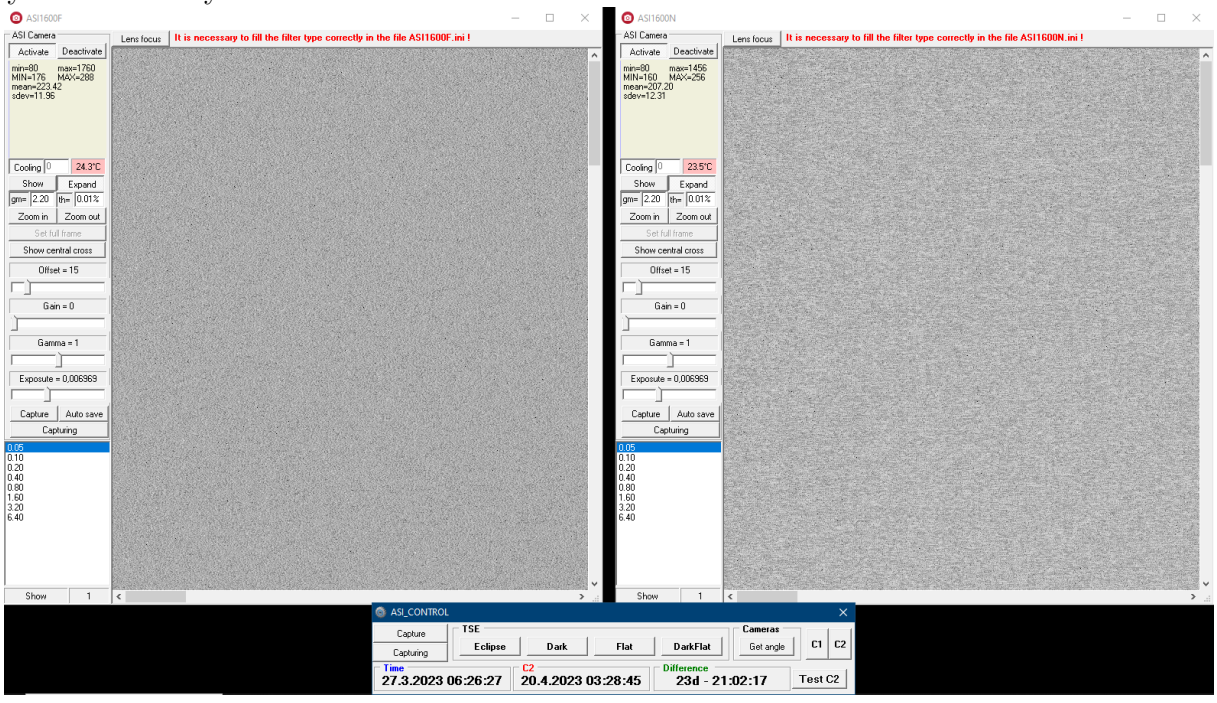
User's manual
Program control for ASI cameras

1. Create new folder and copy three files: ASI_CamerasPRO.exe, ASI_ControlPRO.exe, SFFTW.DLL, ASICameras2.dll and eclipse.c2.

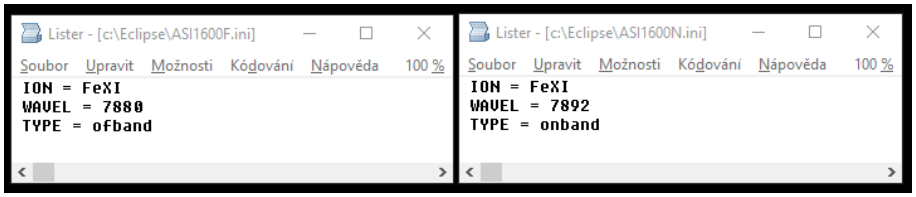


2. Run ASI_ControlPRO.exe. The application finds all connected cameras and it will automatically run ASI_CamerasPRO.exe program for each ASI camera. Windows are arranged on computer display automatically.

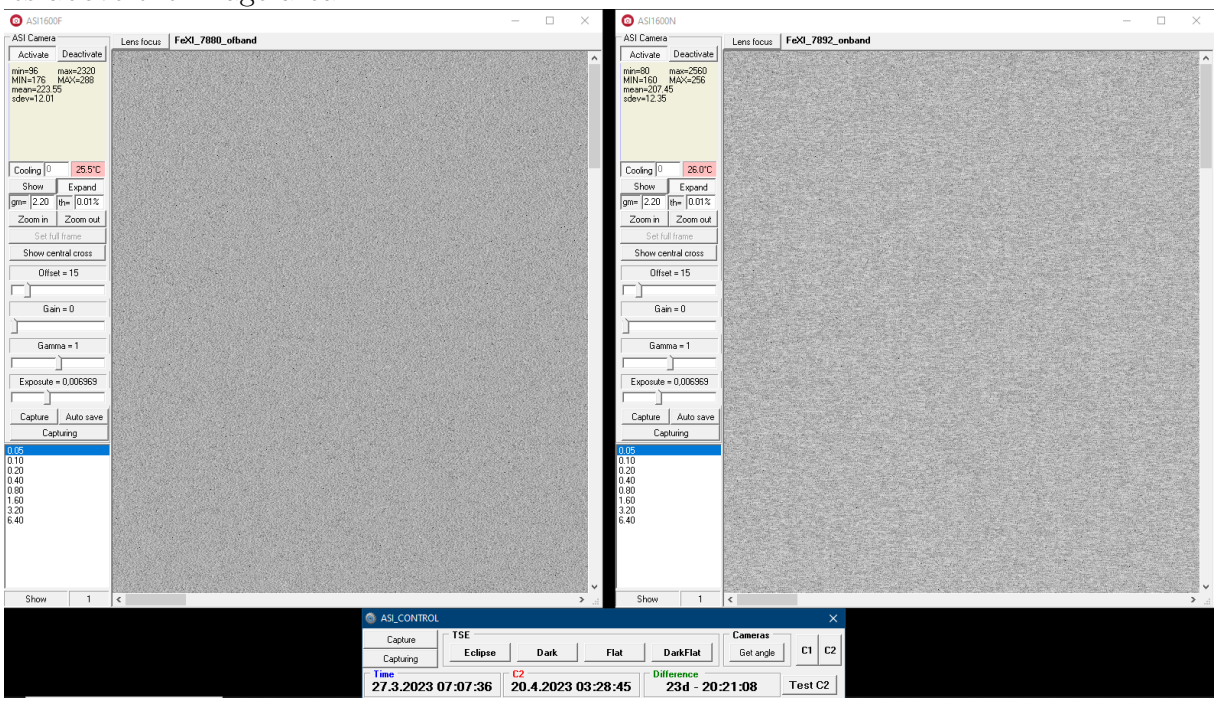


3. After previous step you have to close ASI_ControlPRO.exe program which automatically closes all running ASI_CamerasPRO.exe programs. It is done for creations of INI and EXP files which are create automatically.

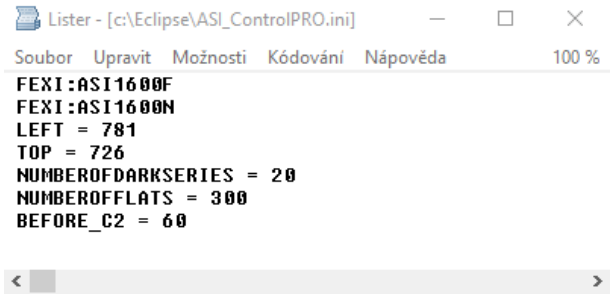
4. Now it is necessary to edit cameras INI files and to fill parameters ION, WAVEL and TYPE.



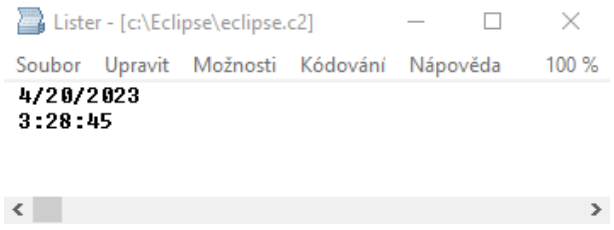
5. Run ASI_ControlPRO.exe again. Each window shows basic information from corresponding INI files above the image area.



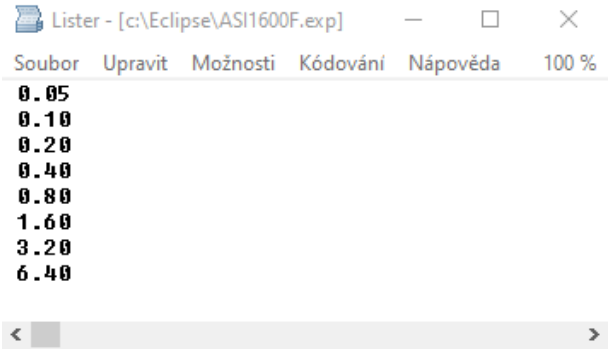
6. ASI_ControlPRO.ini file contained basic settings (list of cameras, window position and number of flats). These values are set automatically and it is not necessary to change them.



7. Capturing starts automatically after C2. The date and time are set in the eclipse.c2 file.



8. Files with *.exp extension contain exposure parameters for automatic controlling. Two cameras forming a couple have to have identically parameters.



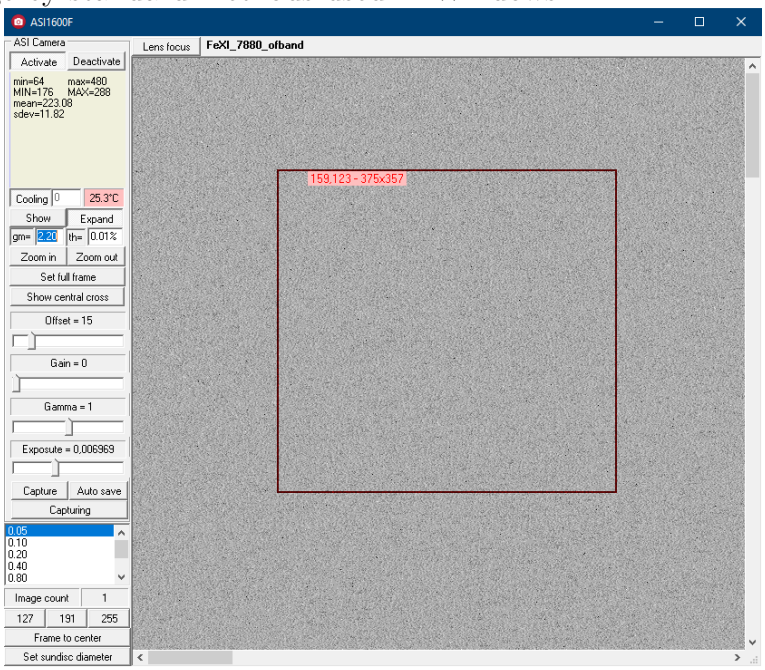
It is necessary to set **Offset = 15, Gain = 0** and **Gamma = 1** .

Now everything is ready to capturing images.

Descrition of ASI_cameraPRO.exe program control

- **Capture** - Get one image and automatically save to corresponding subdirectory when activates Auto save (for example Fe_XI_7892\Image). It is used just for taking test images (not eclipse ones).
- **Capturing** - Get sequence of images and automatically save them to corresponding subdirectory when activates Auto save (for example Fe_XI_7892\Image). It is used just for taking test images (not eclipse ones).
- **Auto save** - Activates auto save
- **Cooling** - Start/Stop cooling to the desired temperature.
- **Show** - Show image with the specific parameters (gm-gamma correction, th-percentage of under-flown and over-flown pixels). This parameters has not influence on taken images. They change only their viewing.
- **Expand** - It is switch activating the auto contrast for images display (it is advisable to switch it ON).
- **Set full frame** - Deactivate the selection of an active frame.
- **Show central cross** - It shows central cross. In the fullframe mode shows the sun circle as well.
- **Lens focus** - Semi-automatic lens focussing tool (will be explained later).

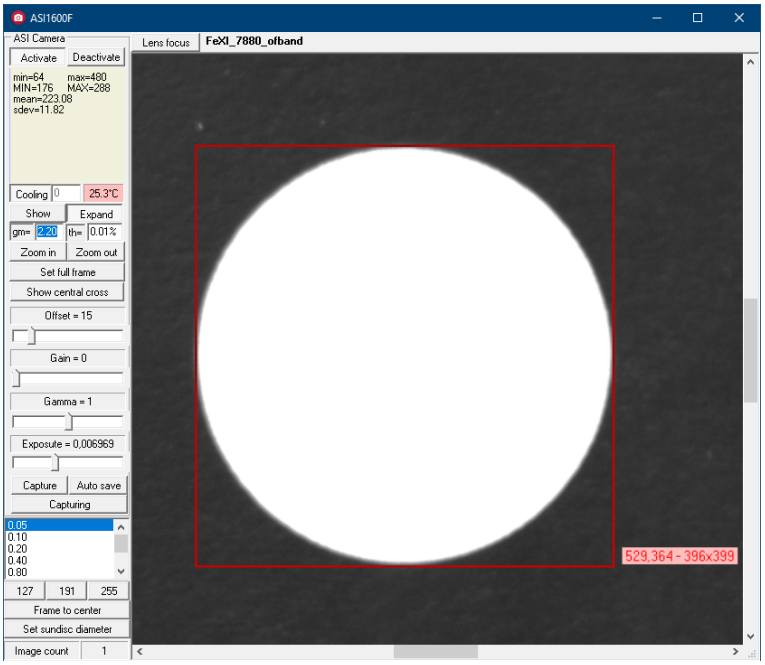
It is possible to use the fast display of small image area (frame) for precise lens focusing. The frame is set by means of left mouse button and dragging the corresponding rectangle. The positions and size can by change by standard methods used in Windows.



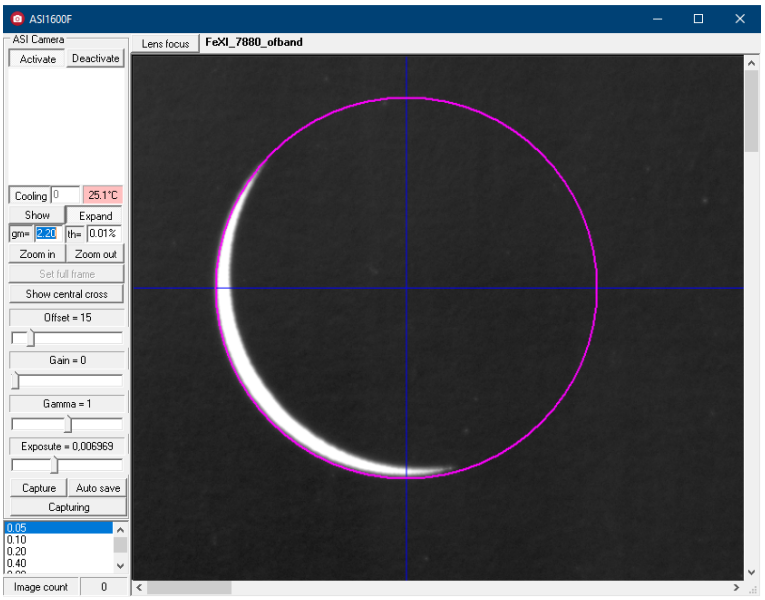
Ones the frame is set the set of buttons appears and it is possible to use these buttons for setting of predefined sizes of the frame and it's centering.

If the frame is set to image central a cross will mark the center of the whole image. It is used for making onband and ofband cameras parallel.

Set sundisc diameter button enables to set sun circle diameter. The circle diameter is defined by the rectangle which positions and size can by change by standard methods used in Windows. (The circle diameter is an arithmetic mean of rectangle width and height)



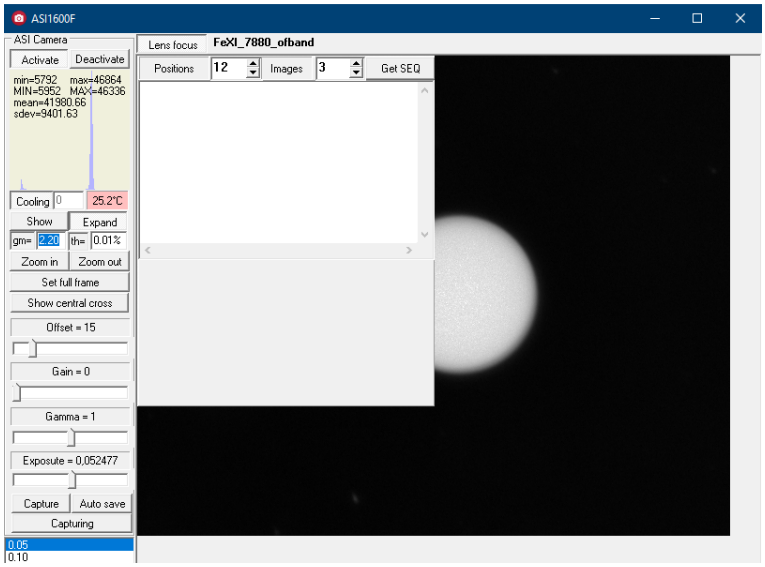
During the partial eclipse centering of the lenses is done by sun circle.



Semi-automatic lens focusing

This tool allows to optimally focus the lens based on image processing. After pressing the **Lens Focus** button, the tool window will appear.

Before starting the process, roughly focus the lens and adjust the focus ring to approximately the center of the focus interval and tighten the ring.

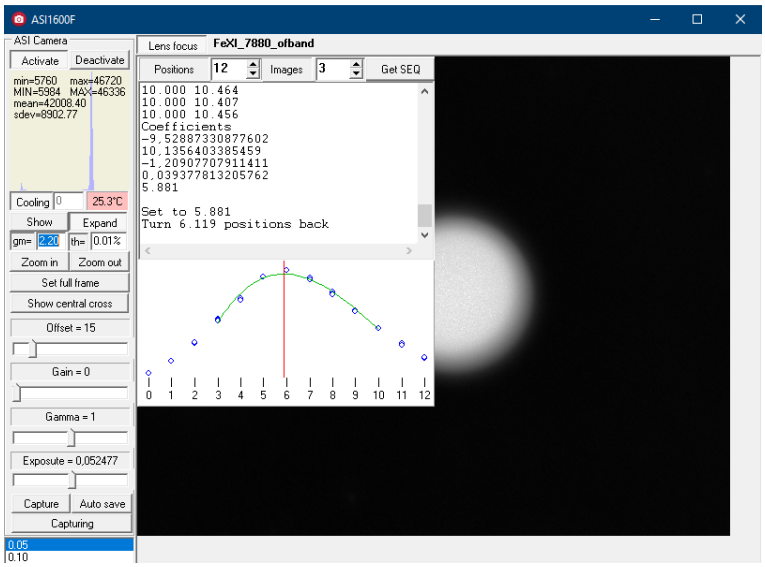


The **Position** parameter specifies the number of focus positions and the **Images** the number of images per position. Parameters are preset but can be changed.

Now set the position of the focusing ring to one of the extreme positions and start the sharpening process with the "Get SEQ" button.

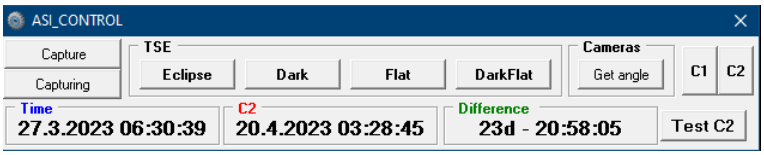
Press the "OK" button to confirm the image capture for each position which can correspond to one revolution of the microfocusing screw. This process can be cancelled by pressing the "Cancel" button.

After all images have been taken, an automatic analysis is performed. The result is written to a text window and also plotted on a graph.



Now we can set the optimal position of the focus ring and fix it with the microfocusing screws.

Description of ASI_ControlPRO.exe program control



Buttons Capture and Capturing are use for test images making. This images are taken with both cameras simultaneously.

Get angle button calculates the angle of the rotation between pair of cameras with 0.5° precision.

C1 resp. C2 button switches enable to maximize program window of camera no.1 resp. camera no.2. If both these switches are OFF the program windows share the desktop.

Taking of eclipse images

The eclipse sequence is started automatically. Start time is set in eclipse.c2 file. You can also start the sequence manually with the **Eclipse** button.

Before eclipse check if all image parameters, the filter temperatures and the camera chips temperatures are correct.

After C3 it is necessary to stop taking images with the **Eclipse** button.

Before the sequence, Offset is automatically set to 100 and Gamma to 1.

Taking of dark-frames

It is necessary to cover the lenses of cameras by non-transparent cups. It is advisable to cover the cups by Al-foil in order to prevent any light to come in the optical system. Then press the **Dark** button and the sequence of dark-frames will be taken automatically. It will take approximately 10-15 min.. Dark frames must be created after the eclipse. Exposures list is saved in ..\vid_on and ..\vid_of in subdirectories. The last *.exp file is always used.

Before the sequence, Offset is automatically set to 100 and Gamma to 1.

Taking of flat-fields

Wait till the end of partial eclipse. Orient the cameras to the zenith, remove the cups and place plastic opaque panels in-front of both lenses. Press the **Flat** button and camera will estimate correct exposure time. You will be ask to validate the exposure time. Simply press OK. Sequence of flat-fields will be taken automatically. In the middle of the sequence you will be asked to change mutually the flat-field panels and press OK.

Before the sequence, Offset is automatically set to 50, Gain to 0 and Gamma to 1.

Taking of dark-frames for flat-fields

It is necessary to cover the lenses of cameras by non-transparent cups. It is advisable to cover the cups by Al-foil in order to prevent any light to come in the optical system. Then press the **DarkFlat** button and the sequence of dark-frames for flat-fields will be taken automatically. It will take approximately 10-15 min.. (Do not touch flat-field button again after taking flat-fields is finished !).

Before the sequence, Offset is automatically set to 50, Gain to 0 and Gamma to 1.

Other software

ASISetName.exe - the application can set the camera name. It is necessary to set different camera names in one pair.

SetSystemDT.exe - the application can set the system time. It is necessary to set UTC time zone. We have to run the application as administrator.