

Breeze - Hardware and settings guide

This guide will show how to setup Camera and Sample Mover in Breeze

Note: For connecting to Specim camera first follow this guide: [Specim hardware installation guide](#)

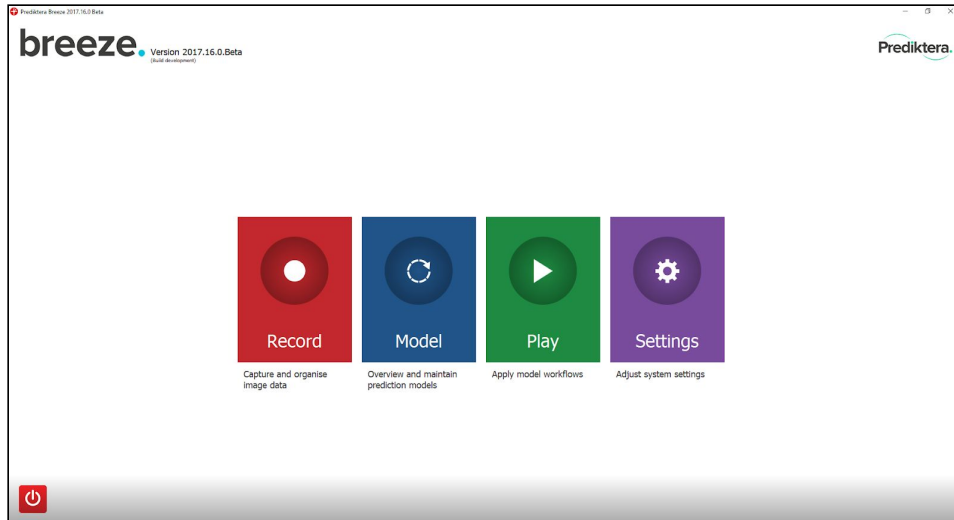
Available Cameras and Sample Movers in Breeze

Manufacturer	Camera	Sample mover
Specim	LUMO SDK – Swir – FX-10 – FX-17	SisuChema Lab-scanner
Middleton Spectral Vision		ViaSpec II
inno-spec	RedEye	Stepper table
HySpex	SDK (VNIR, SWIR)	Stage
Generic	USB webcam	
Prediktera	File reader simulator camera	UmBio Inspector

Open Settings

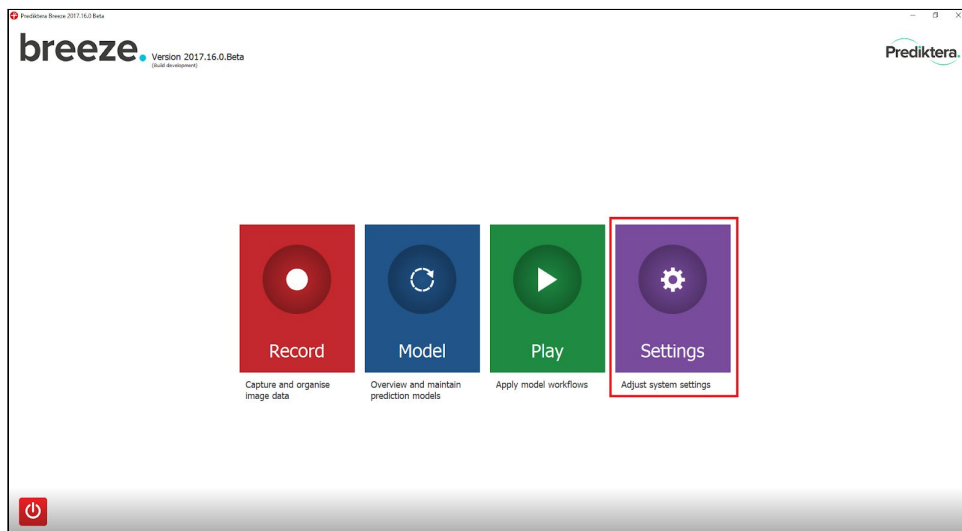
1. **Start Breeze with the shortcut created after installation.**

The Breeze start screen should look like this:



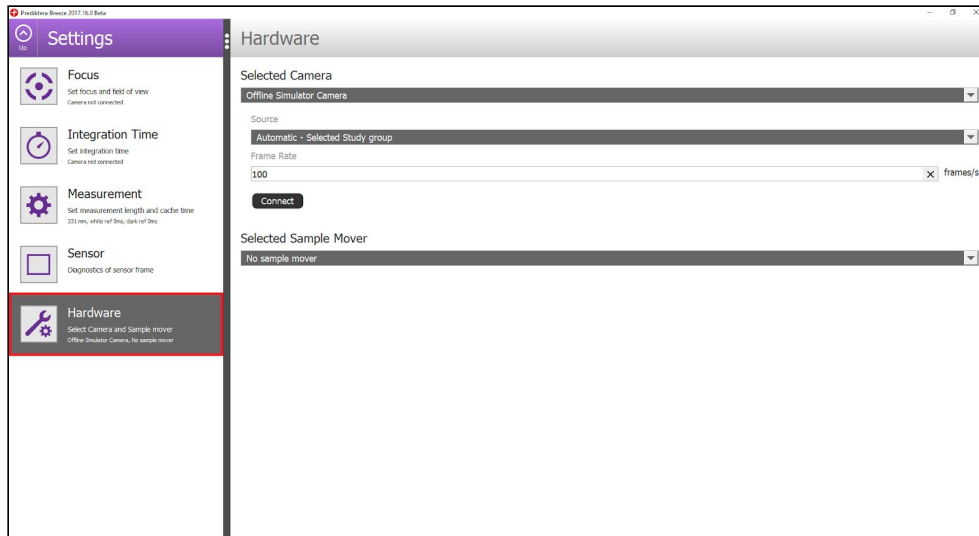
Breeze is organised into different views depending on the task at hand. Each view has a specific purpose as noted below each button.

2. Enter the Settings view by **pressing the “Settings” button**



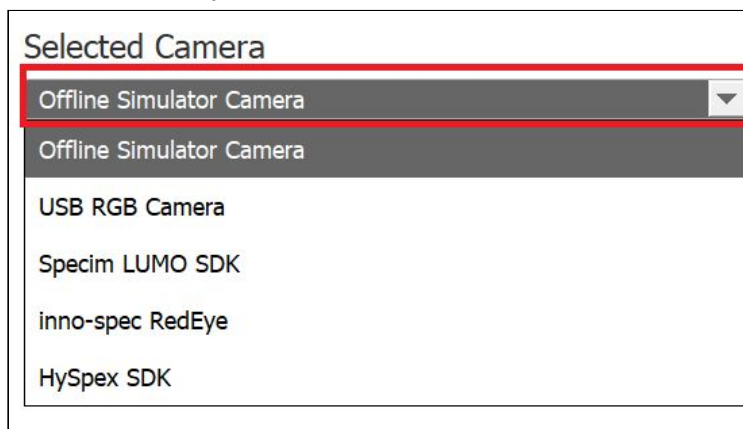
Hardware

1. Select “Hardware”



Select Camera

1. Set the camera you would like to use in the “Selected Camera” drop down



2. Expand “Advanced” to see optional settings available for your camera (optional)



For example select “Mirror line” to mirror the image

3. Under “Type” select your camera type

4. **Press “Connect”** button and wait for the camera to be connected (this can take a moment)



Note: Breeze automatically connects to selected Camera when pressing Record or Analyse button in the Record and Play view.

5. Expand advanced again to see updated options for your connected camera.
Set “Frame rate”. Number of frames per second.

Note: If you are using “Offline Simulator Camera”, “Source” is available. The default source is “Automatic - Selected Study group”, which uses the first group with measurements from the selected Study.

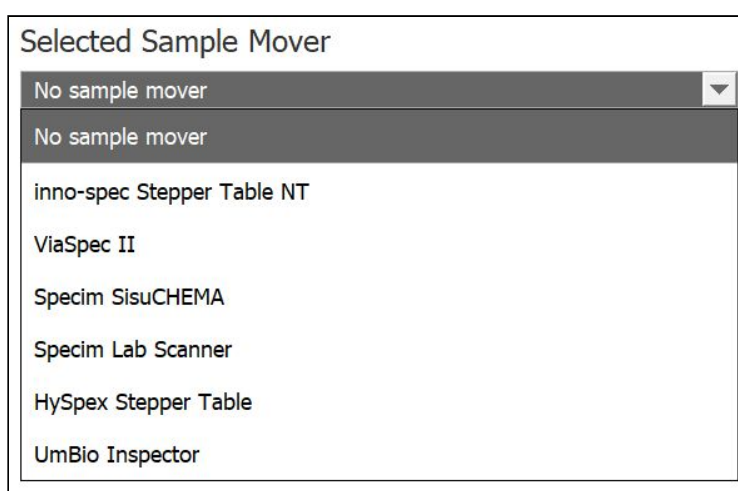
6. Camera information is presented. In this example the “Offline Simulator Camera” is connected:

Information

Source	=	Automatic - Selected Study group
Width	=	384 pixels
Band count	=	31 wavelengths
Max signal	=	65536

Sample Mover

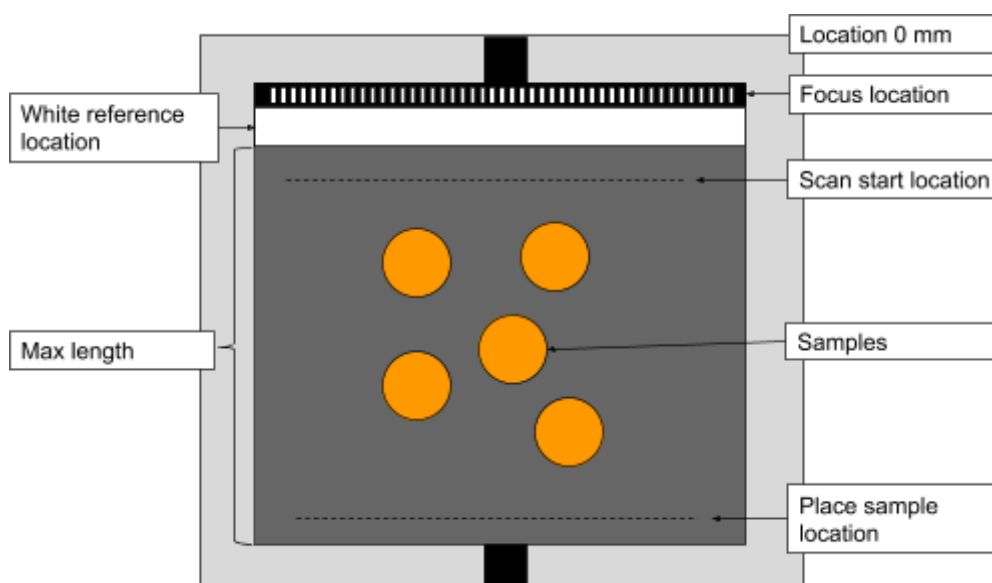
1. Set the Sample Mover that you want to use in the **“Selected Sample Mover”** drop down



2. Select **“Serial port”**

3. Advanced settings (Optional)

Note: Different sample movers have different advanced options.



4. Press **“Connect”**



Note: Breeze automatically connects to selected Sample Mover when pressing Record or Analyse button in the Record and Play view.

Sensor

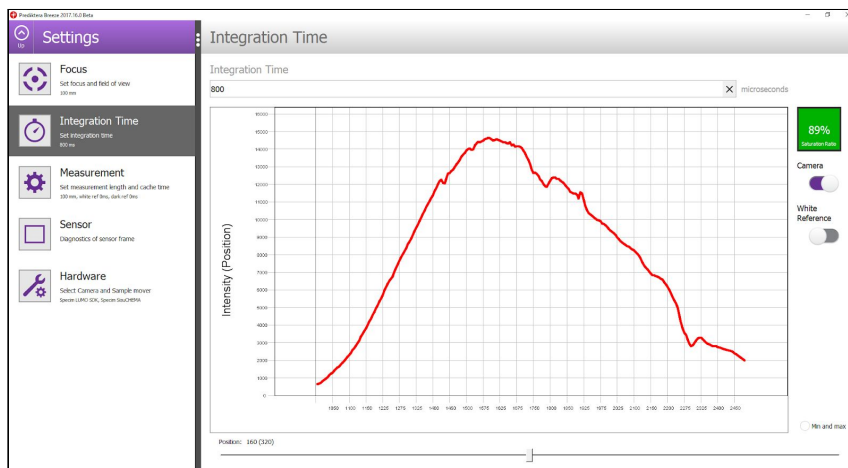
1. Press the “Camera” switch. Shows bad or dead pixels



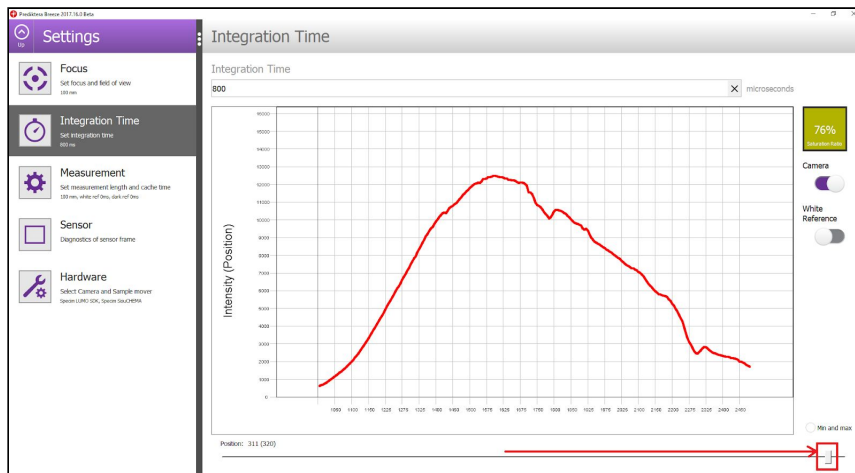
Integration Time

Adjust the “Integration Time” so that the highest value is between 80-90% (the background color changes to green) of camera max signal, shown in the “Saturation ratio”.

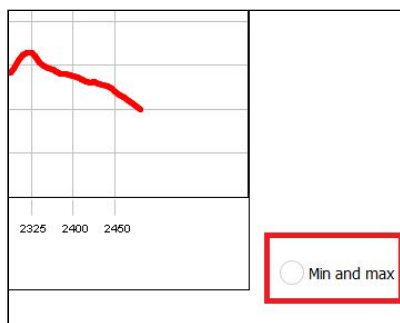
1. Press “Camera” and press “White Reference”



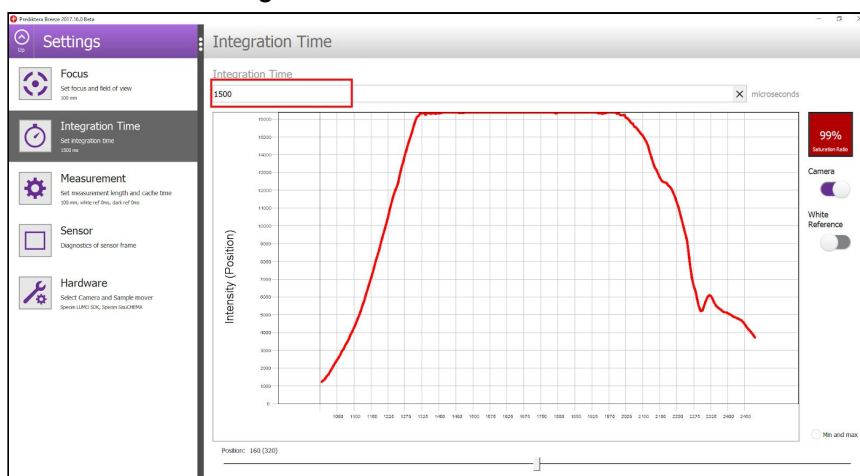
2. Move “Position” slider to show white reference values on other pixels



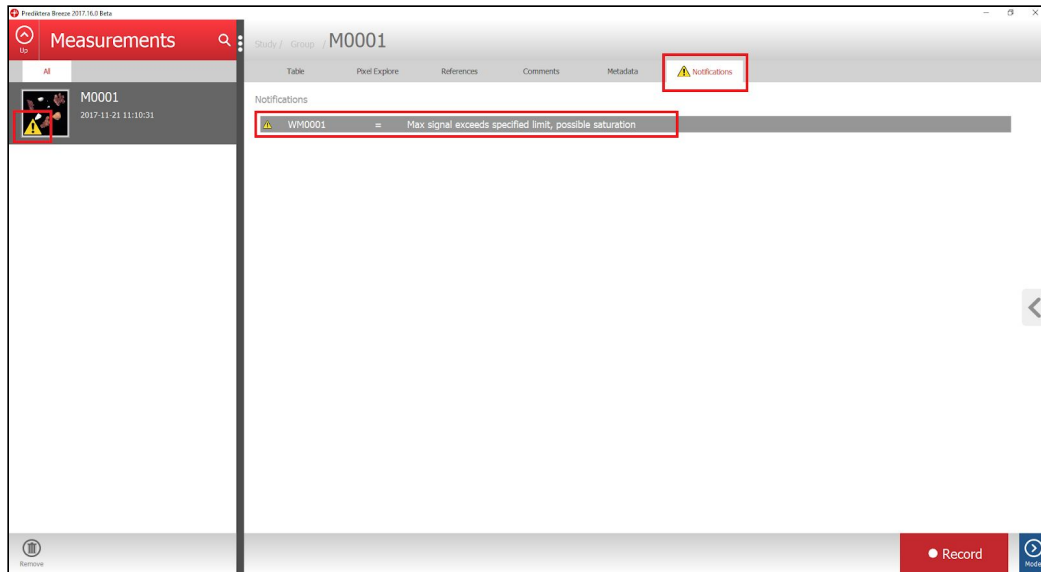
3. Press “Min and max” to show minimum and maximum over all pixels



4. If “Integration Time” is set to high the white reference image will be saturated, which means that some signal data can be lost.



Note: While recording images Breeze automatically checks the white reference for saturation or if the white reference signal is too low. If these problems occur it will be shown in the “**Notifications**” tab under “Measurements” in Record.



Available camera notifications:

- i. "Max signal exceeds specified limit, possible saturation"
- ii. "Max signal is lower than specified limit"
- iii. "Uneven signal, possible defect lamp"

Focus

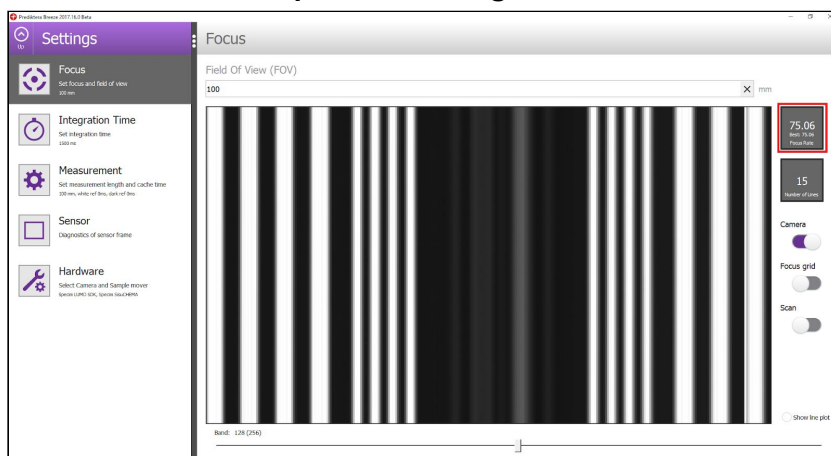
It's important that the focus is set correctly for the lens before recording. Make sure that the focus strip position is the same as the highest point of the sample.

1. "Field of view" is the width of the image you can see in focus, specified in millimeters.

It's important that the "Field of view" is correct since it will be used to calculate the speed of the Sample mover. If the "Field of view" is incorrect it will result in non square pixels.

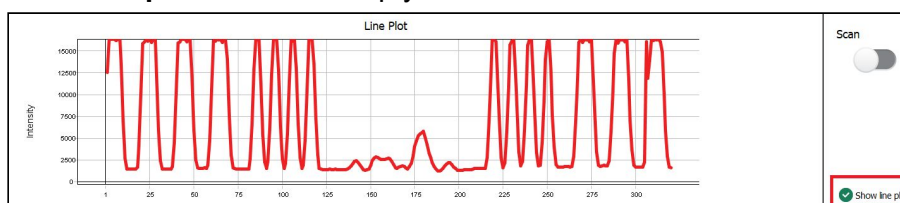
"Field of view" is also used in the conversion of pixels into mm unit. This is, for example, used in spatial descriptors.

2. Press "Camera" and press "Focus grid"

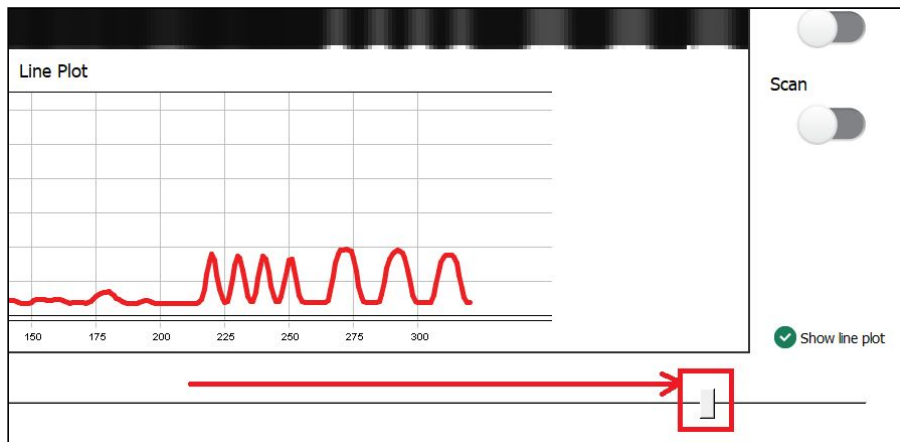


You can make use of the "Focus rate" value to get the best focus. Adjust manually the lens and until you reach the highest focus rate and the lines are sharp.

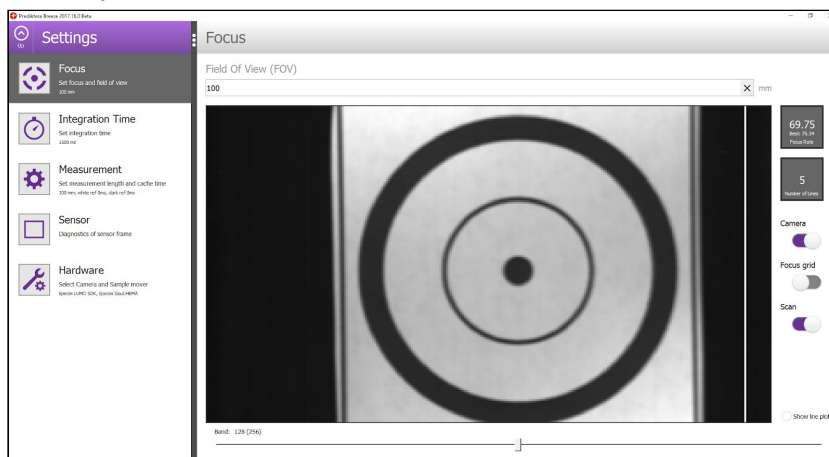
3. The "Line plot" can also help you to set the focus.



- It's optional to select different bands.

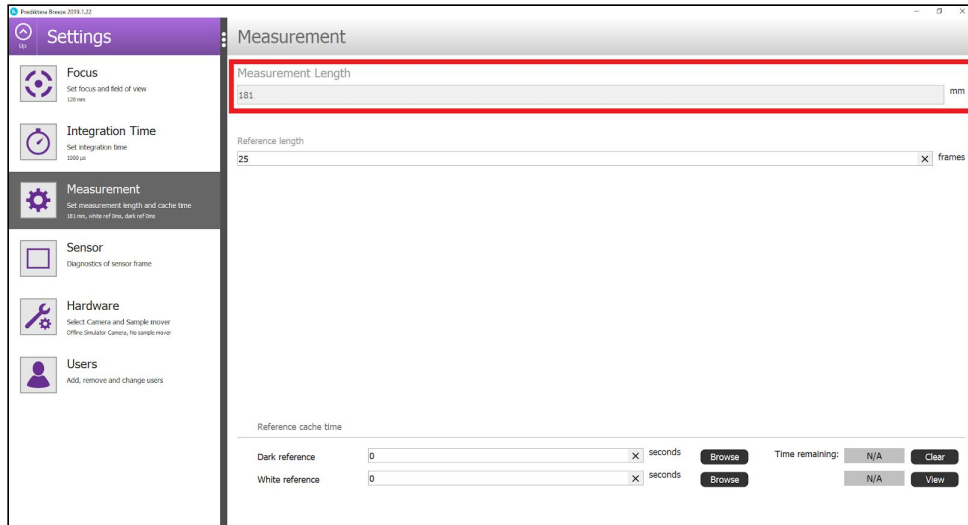


- Press **“Scan”** and measure a round object to make sure that the **“Field of view”** is correctly set.



Measurement

1. Set “Measurement Length”.



This is how long the image scan will be in millimeters.

Optional: The “**Reference length**” is how many frames (lines) it will scan when taking the white reference.

- Optional: Breeze can **store “White reference” and “Dark reference” images** in memory during the Breeze session. The time, in seconds, that the references are stored is specified in the two input fields. When the time specified has expired Breeze will automatically take new references. If the values are 0 (default), it will take a new white and dark reference for every new scan.



For example: 3600 seconds will store the reference for one hour before it will take a new reference.

You have now completed the camera and sample mover setup! Switch to record mode to start scanning your samples.