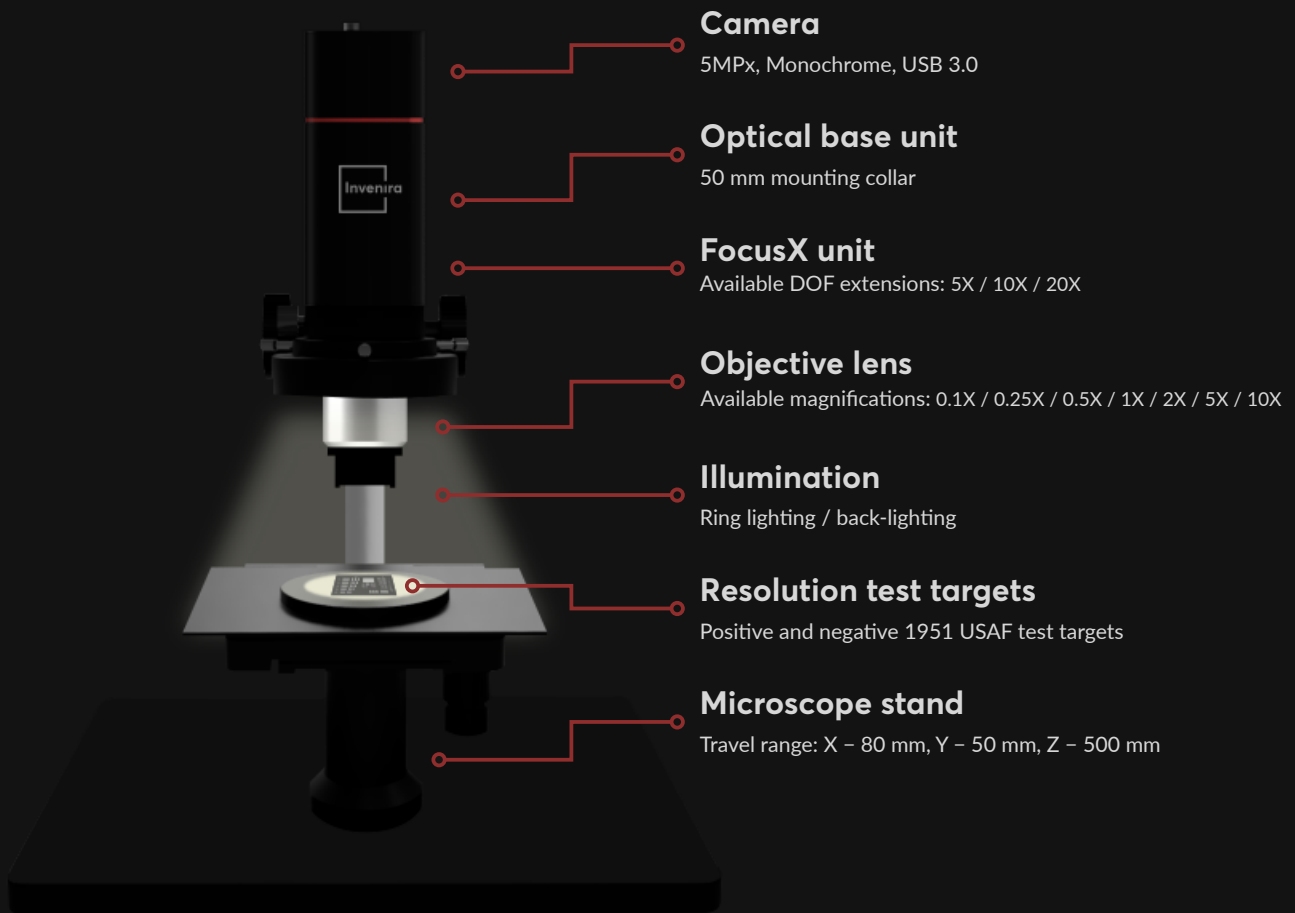


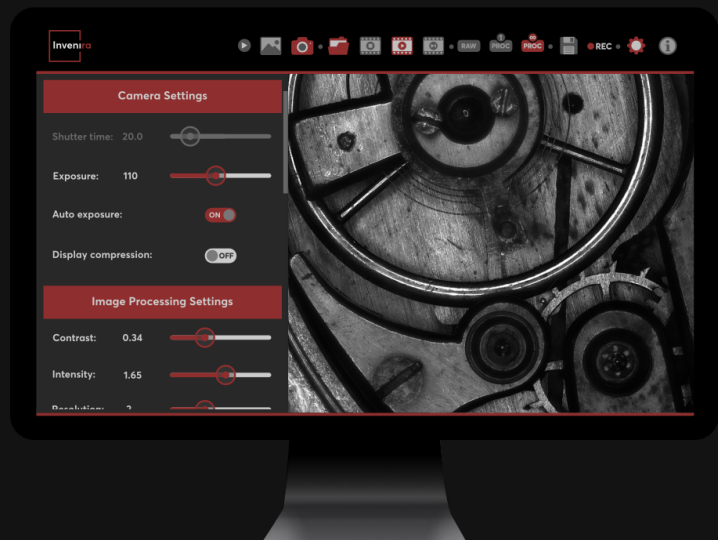
**FocusX** is a unique extended-depth-of-field imaging technology that was invented and developed by Invenira. The technology revolutionizes vision across industries. Thanks to its versatility, the technology can be tailored to any type of imaging system. Invenira offers a FocusX Evaluation Kit which allows you to explore the possibilities and performance of the FocusX technology first hand. The kit includes all essential components, a number of optional components depending on your interests and applications, a range of accessories to facilitate fast testing and easy-to-use software for image capturing, processing and analysis.

## Hardware



## Software

The software that is included in the FocusX Evaluation Kit allows you to capture camera images and process them in real-time with the FocusX algorithm. The key parameters of the algorithm can be set according to your application with the aid of an easy-to-use graphical interface. Other functionalities include saving raw and processed images, capturing video sequences, loading previously captured images for post-processing and analysing images.



## Available configurations

You can choose from 21 configurations by picking the desired magnification and depth of field extension.

Magnification			0.1X	0.25X	0.5X	1X	2X	5X	10X
<b>Field of view</b> Image diagonal, ±10% deviation	mm		110	44	22	11	5.5	2.2	1.1
	<b>Resolution</b> $\lambda = 550 \text{ nm}$ , middle of DOF, > 40% contrast	$\mu\text{m}$	55	22	11	5.5	2.8	1.1	0.6
<b>Depth of field</b> Axial displacement range of the object for which the imaging system can reach the specified resolution with contrast > 30 %	<b>5X</b>	mm	75	12	3.0	0.75	0.19	0.030	0.0075
	<b>10X</b>	mm	150	24	6.0	1.5	0.37	0.060	0.015
	<b>20X</b>	mm	300	48	12	3	0.74	0.120	0.030
<b>Working distance</b> Distance from the bottom of the objective lens to the middle of the focal plane, ±2% deviation		mm	1222	420	155	57	17	7.8	13
<b>Objective lens</b>	max. $\emptyset$	mm	60	42	42	30.5	30.5	34	34
	length	mm	42	22	42	40	43	76	82
<b>Mounting collar</b>	$\emptyset$	mm				50 <sup>+0</sup> <sub>-0.2</sub>			
	length	mm				22			
<b>Optical base unit</b>	w × d × l	mm	60 × 60 × 158						
<b>Camera resolution</b>	h × w	px	2054 × 2456						
<b>Image sensor type</b>	Monochrome								
<b>Camera interface</b>	USB 3.0								

## Available reference apertures

Reference apertures can be used to visualize the added value of the FocusX technology. The FocusX unit can easily be interchanged with any reference aperture. The apertures are compatible with all listed objectives.

DOF extension			1X	5X	10X	20X
<b>Working F/#</b>			F/8.2	F/18	F/26	F/37
<b>Resolution</b>	Image side	$\mu\text{m}$	5.5	12	17	25
<b>Depth of focus</b>	Image side	mm	0.15	0.74	1.5	3

## Included accessories

Each kit comes with the following accessories that allow you to quickly get started with testing the technology.

<b>Microscope stand</b>	Entry-level microscope stand with travel ranges: X – 80 mm, Y – 50 mm, Z – 500 mm.	<b>Resolution test targets</b>	Positive and negative 1951 USAF resolution test targets.
<b>Illumination</b>	Elementary diffuse LED ring lighting and back-lighting, suitable for basic illumination of samples.	<b>Miscellaneous</b>	USB cable for camera connection, storage box for all components.

## System requirements and recommendations

The following components are required/recommended to run the software and achieve the stated frame rates.

<b>Required</b>	<b>OS</b>	Windows 10, 64-bit
Host PC	<b>CPU</b>	Intel Core i7, 2.2 GHz
Frame rate approx. 1fps	<b>RAM</b>	16.0 GB
<b>Recommended</b>	<b>GPU Model</b>	NVIDIA
Host PC + GPU	<b># CUDA cores</b>	1280
Frame rate approx. 15fps	<b>Memory</b>	6.0 GB