

USB Microscope Cameras

The Helmut Hund GmbH offers four USB color cameras as standard cameras for microscopy. All models feature:

- easy installation and operation
- software for image capture and processing (included in delivery)
- easy attachment to the microscope through C-Mount adaptors



USB color cameras UI-1460LE-C, UI-1240LE-C (left) and UI-22x0SE-C (right)

	UI-1240LE-C	UI-1460LE-C	UI-2250SE-C	UI-2280SE-C
Chip size	1/2"	1/2"	1/1.8"	2/3"
Sensor type	CMOS	CMOS	CCD	CCD
Resolution	1280 x 1024 (1.3 Mpixels)	2048 x 1536 (3,1 Mpixels)	1600 x 1200 (2 Mpixels)	2448 x 2050 (5 Mpixels)
Pixel pitch [µm]	5.3	3.2	4.4	3.45
Frame rate [fps] ¹⁾	25.8	11	12	6
Color depth [Bit]	8	8	8	8
Interface	USB 2.0	USB 2.0	USB 2.0	USB 2.0
Software	uEye Cockpit as part of a SDK			
C-Mount adapter	0.5x	0.5x	1x	1x
Windows version	8, 7 ²⁾ , Vista ²⁾ , XP ²⁾ , 2000			

Remark: ¹⁾in freerun mode, ²⁾32- and 64-bit versions with different software packages.

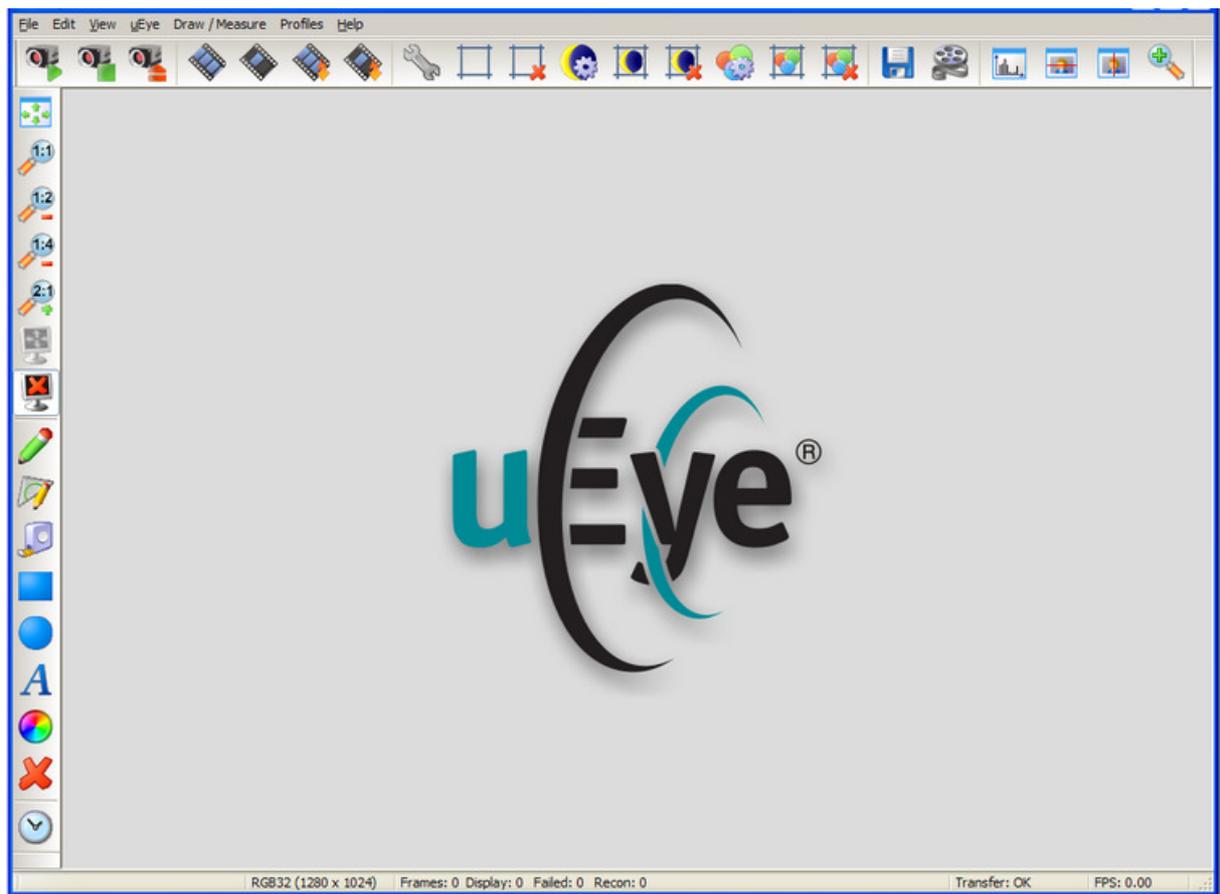
Software:

Every camera comes with one licence of a Software Development Kit (SDK) with which own applications can be developed. In addition, 'uEye Cockpit' is installed as a standalone application for image capture and measuring/calibration tasks.

The software is available in German and English and contains a manual in both languages. For more convenience, we deliver a CD-ROM containing the SDK in the most recent version. The camera is also shipped with a suitable USB cable.

To install the software, the CD-ROM is inserted into the drive, and the camera is not yet connected to the computer. The setup program starts automatically, the user will only have to confirm a couple of status messages. After the installation is complete, the user connects the camera to the computer, and the system installs the correct camera driver. The camera system is now operational.

A. Main Window



B. Toolbars

The toolbars in uEye Cockpit provide the tools as listed in the table below. Depending on the selected mode (expert mode on/off), some of these tools may not be available.

Pressing the button 'Open camera' opens a preview window that displays the camera's live-view image. In case the exposure time is not correct at the beginning, the user can activate the automatic exposure mode via the button 'dialog box for setting the camera parameters'. This will always make an image visible whose exposure may then be further optimized manually. In the next step, the button 'White Balance' compensates possible color aberrations in the image.

Aside from the mere display and storage of an image, the software offers the possibility to insert additional information, for example date and time (button 'Show/hide time') or annotations (button 'Add text to image').

With uEye Cockpit, the user may also perform basic measurement tasks. To this end, the microscope is calibrated with an object micrometer by clicking the menu item 'Draw/Measure - Measure - Set Measure Unit'. Subsequent measurements (button 'Measure Distance in Object') will make use of this unit so that distances are displayed in their correct dimensions.

Top toolbar

	Open camera and start in live mode
	Open camera
	Close camera
	Start/stop live video (freerun mode)
	Snapshot in freerun mode
	Start/stop continuous triggered capture
	Snapshot in trigger mode
	Open the dialog box for setting the camera parameters
	Select AOI (Area Of Interest)
	Delete selected AOI
	Automatic brightness control (AES/AGC) on/off
	Set reference area for automatic brightness control
	Delete reference area for automatic brightness control
	Auto white balance (AWB) on/off
	Set reference area for auto white balance
	Delete reference area for auto white balance
	Save image as bitmap
	Open the dialog box for AVI recording
	Open/close Histogram window
	Open/close Horizontal Line View window
	Open/close Vertical Line View window
	Open/close Zoom window
	Open manual

Left toolbar

	Scale display to window size
	Display at original size
	Scale display down to half size
	Scale display down to quarter size
	Scale display up to double size
	Show image at full screen size (requires Direct3D)
	Deactivate display
	Draw freehand in image
	Draw line in image
	Measure distance in image
	Draw circle in image
	Draw rectangle in image
	Add text to image
	Choose colors for drawing functions
	Clear all drawn elements
	Show/hide time

On principle, CCD cameras feature a lower noise level and higher sensitivity than the CMOS models. This makes them particularly suitable for darkfield and fluorescence applications. The UI 1460LE is our entry-level model for digital microscopy and is well suited for the documentation of brightfield and phase-contrast images. However, it can also be employed for imaging native-blood specimens in darkfield. The UI-1240LE-C has a low noise level due to its comparably large pixels and reaches a framerate of 25 fps. This enables the user to focus the microscope or to find interesting specimen areas by observing the camera image directly.

Contrasting method	UI-1240LE-C	UI-1460LE-C	UI-2250SE-C	UI-2280SE-C
Brightfield (BF)	+	+	o/-	o/-
Phase contrast	+	+	+	+/o
Darkfield	+	+/o	+	+
Fluorescence	o/-	o/-	+	+
Polarisation	+/o	+/o	+	+
Incident-light BF	+	+	+/o	+/o
Stereo	+	+	o/-	o/-

Application matrix: +: well suited, o: applicable (with limitations), -: not suited.

Order Nos.:

UI-1240SE-C-HQ 019.9999.183
 UI-1460LE-C 019.9999.167
 UI-2250SE-C-HQ 019.9999.169
 UI-2280SE-C-HQ 019.9999.171

Accessories:

C-Mount adaptor, intermediate optics 0.5x 019.0453.0
 C-Mount adaptor, intermediate optics 1x 019.0094.0

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