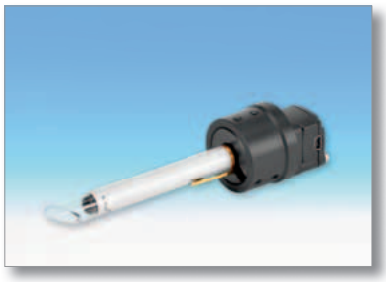
Camera CV-UI-1008-XS-C

Extremely small camera form, but perfect images

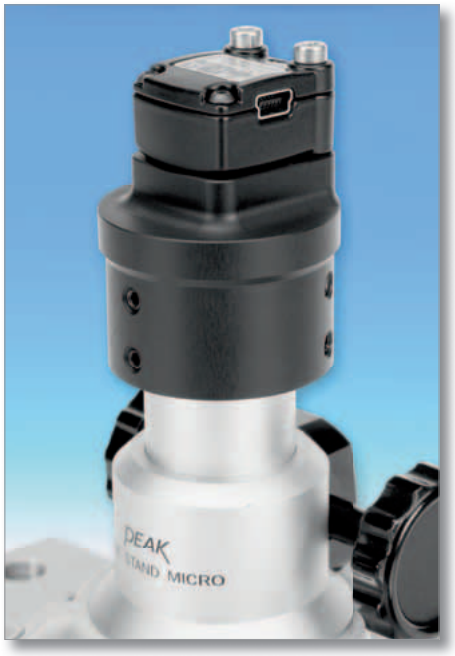
The CV-1008-XS USB 2.0 camera, which has a size of less than 1 cubic size, is packed with smart features. The ultra-small casing includes a modern CMOS sensor with an integrated autofocus lens as well as a DSP slot. This slot offers a wide range of functions, of which some are also known from the consumer sector. With the USB CV-1008-XS many of these features are now also available in a professional USB camera and can be integrated in your own applications via the corresponding SDK.

The main technical data of the CV-UI-1008XS-C

USB 2.0
8 Megapixel CMOS sensor
3280 x 2464 in snapshot mode
1280 x 720 with 15 images/sec.
Integrated lens with autofocus
Electronic image stabilisation
Automatic picture control
EMC conformity: CE Class B, FCC Class B

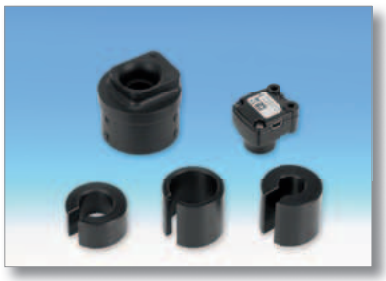


In the field of measuring and inspection technology these extremely small but excellent USB cameras are used in combination with measuring magnifiers, microscopes as well as pen microscopes. In areas where until now photo digital cameras where used on mobile microscopes, for example from the PEAK series, the use, transport and saving of images have been substantially simplified. The representation of the scales in the oculars is as clear and sharp as the actual image.



Owing to the integrated lens in the USB camera no ocular adapter is required when used on stereo microscopes. In this way loss of time caused by the removal of the ocular and the risk of polluting the tube and the lenses can be avoided.

The scope of delivery of the USB camera includes the original driver software (in English). Alternatively, the Metric BE software can be used with this camera. Metric BE software is more comfortable for rapid use.



An extensive range of adapters is available for the various combination cases. To some extent the various diameters of the microscopes or magnifiers are combined with intermediate adapters.

The small form of the camera and special LED ringlights installed in the adapter make it also possible to use the system as endoscope substitute, for example in the area of tank construction. We can also provide special adapters at

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		Price excl. VAT.
	era with driver software	
ADP-XS-C	Adapter for USB 2.0 camera	
Metric BE	Software for presentation and storing	

Technical data CV-UI-1008-XS-C:

Sensor specification	
Type of sensor	CMOS
Shutter device	Elektronic rolling shutter
Characteristics	Linear
Read out method	Progressive Scan
Resolution class	HD ready
Resolution	Live mode: 1280 x 720 Pixels (0.92 Megapixels) Software trigger: 3264 x 2448 Pixels (8 Megapixels)
Aspect ratio	4 : 3
Bit depth	8 Bit
Optical sensor class	1/3 inch
Accurate sensitive face	4.59 mm x 3.45 mm
Accurate optical sensor size	5.74 mm (1/2.79 inch)
Pixel size	1.4 µm, square
Monochrome sensor format	-
Colour sensor format	Sony MCB1172
Features	Integrated autofocus lens Electronic image stabilisation Face recognition Hardware colour calculation (YC_bC_r Format) Internal sensor for exposure control (AES), white balance (AWB) and gain (AGC).
Optical characteristics	
Focal length (35mm equivalent)	4,56 mm (35 mm)
Picture angle horizontal/vertical	approx. 53° / 41°
F-number (F)	1 : 2.8
Focal point	Linear motor: Autofocus / manual software
Focus range	100 mm ~ infinity
Gain	
Colour model (total / RGB)	2 x / -
Analogue extra gain	-
Camera timing	

		1280 x 720 (HD 720p) 960 x 480 800 x 480 (WVGA) 640 x 480 (VGA) 640 x 360 400 x 240 352 x 288 (CIF) 288 x 352 320 x 240 240 x 320
Picture sizes (software trigger mode)		3264 x 2448 (8 MP) 3264 x 2176 (7 MP 3 : 2) 3264 x 1836 (6 MP 16 : 9) 2592 x 1944 (5 MP) 2048 x 1536 (3 MP) 1920 x 1080 (HD 1080p) 1632 x 1224 1600 x 1200 (2 MP) 1280 x 960 (1.2 MP) 1280 x 720 (HD 720p) 960 x 480 800 x 480 (WVGA) 640 x 480 (VGA) 640 x 360 400 x 240 352 x 288 (CIF) 288 x 352 320 x 420 240 x 320
Frame rate HD 720p (1280 x 720 Pixels)	1/s	15
Frame rate WVAG (960 x 480 Pixels)	1/s	30
Frame rate WVGA (800 x 480 Pixels)	1/s	30
Frame rate VGA (640 x 480 Pixels)	1/s	30
Frame rate CIF (352 x 288 Pixels)	1/s	30
Hardware trigger		
Mode		-
Power consumption		
	W	approx. 1 W *3)

*1) The pixel clock is automatically selected depending on resolution and cannot be altered. Due to transfer in YC_bC_r format, two bytes of data are transmitted per pixel clock.

Assembly and operation

- Putting the camera into standby mode is recommended for long periods without use.
- The allowed temperature region of the operating environment is lower than in other uEye models due to the sensible heat generation of the USB uEye XS.
- The mounting of the camera body on a thermally conductive mounting is recommended.
- Power consumption depends on operating mode and focus position. In the "infinity" focus position the camera's power consumption is at its lowest.
- The integrated optics are very sensitive to shocks in the direction of the optic axis, if the focus is not on minimum or infinity.

Camera parameters

- Full sensor resolution is only available in single picture mode with software trigger.
- The pixel clock is automatically selected depending on resolution and cannot be altered. The pixel clock is 32 MHz at full resolution (1280 x 720 pixels) and 16 MHz at lower resolutions. Due to transfer in YC_bC_r format, two bytes of data are transmitted per pixel clock. If there is not enough bandwidth available on the USB bus for the camera, this may lead to frequent transmission (Transfer Failed) errors. In this case the solution is to reduce the camera's resolution or select a more powerful USB connection.
- The camera transmits image data exclusively in YC_bC_r format. The Bayer raw data format is therefore not supported.
- CPU utilisation is less than in bitmap (DIB) mode when displaying images in Direct3D mode.
- Shutter speed can only be altered in free-running mode (freerun). Software trigger mode: Continuous trigger mode is not supported. The function cannot be called up with the *IS_DONT_WAIT* parameter. Please use *IS_WAIT* as the parameter.
- The camera is not designed for flash operation. If the camera is operated with external flash lighting, it should be noted that the automatic brightness control is adjusted when the lighting is activated. It is recommended to wait for a short while before image acquisition until adjustment is completed.

Other information on camera properties

- The sensor partly shows colour spots in the picture through the micro lenses. These are reddish towards the centre of the picture and greenish towards the edge.
- Image data is always resharpened within the camera, which in the case of edge-based image processing (e.g optical character recognition, OCR) can lead to inaccuracies.
- Image data is always processed within the camera with a noise filter, which can lead to fine details being lost.
- Depending on the resolution and operating mode, there is a latency via the image preprocessing within the camera of approx. 2 pictures between taking and transmission to the PC.
- When using internal image stabilisation part of the image field is used as a reserve for motion compensation. The visible image field is reduced as a result by approx. 10%.