

micro vision systems

by optikron



Optikron's micro cameras and vision systems are optimized for applications in which it is important to have imaging systems with the smallest sizes in combination with the highest image quality. In these miniaturized modules, the smallest sensors are used together with special optics which are designed for getting the best view of your objects. The cameras are very light-sensitive and have an outstanding performance by the optimal combination of electronics, optics and mechanical parts. All micro cameras can be integrated into complex systems or can be used as stand-alone devices. Additionally to our standard cameras are customized modules and the development and manufacturing of individual vision systems available as well. Key applications for these solutions are endoscopy, microscopy, machine vision, automation, metrology and inspection, bioscience and analytics and many more.

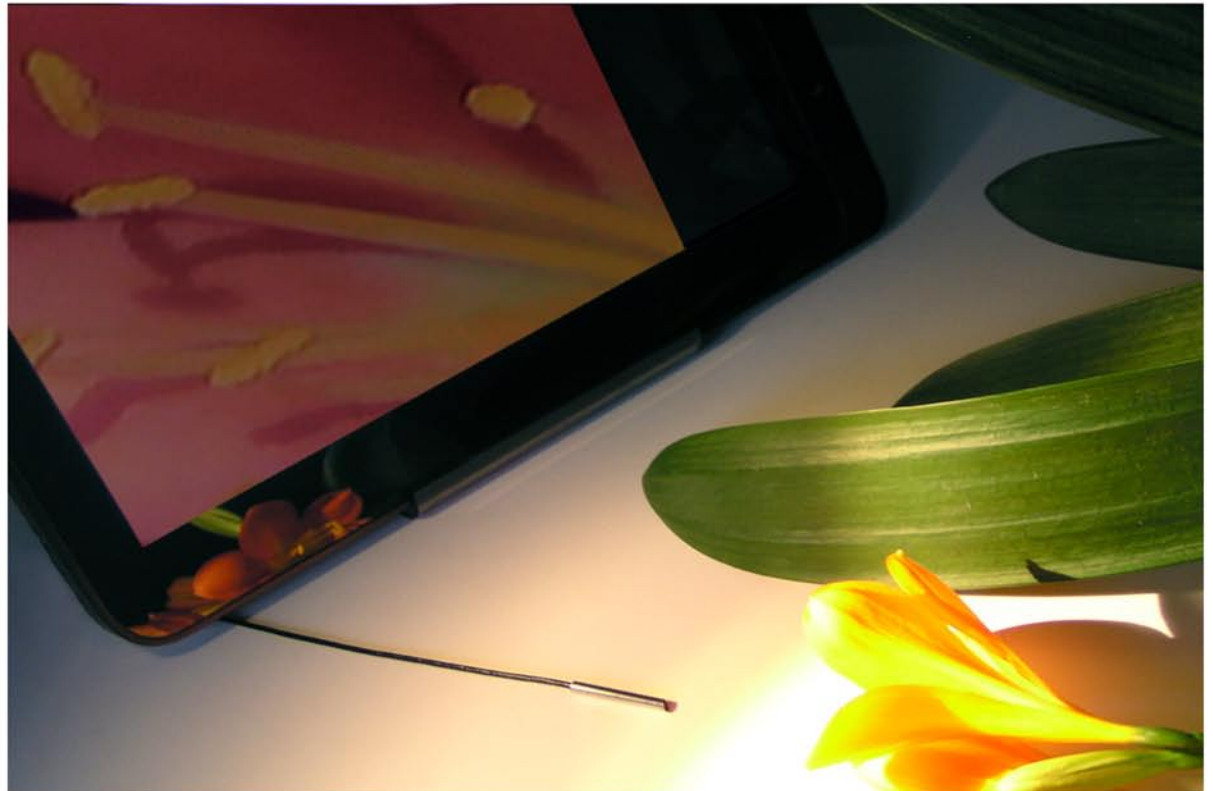
optikron

micro-cams

Optikron GmbH
Jena, Germany
www.optikron.de

micro vision systems

by optikron



Ø2.75x24 mm (stainless steel tube) or
Ø3.2x22 mm (aluminum tube)

1/10" CMOS sensor 400x400 px.

USB (UVC) or CVBS

multi-element lenses for optimized
image quality and highest DOF

standard and customized modules

key application:

endoscopy, life science, automation,
machine vision, technical inspection



Optikron's s-series camera modules have very small dimensions for a high miniaturization. With their optimally designed and matched optics and electronics for these small sensors have these modules an impressive image quality. The available standard optics are generating an outstanding high depth of field and because of the high light-sensitivity of the sensor these cameras can be also used in surroundings with lower light conditions. There is additionally a NIR version available. The camera will switch automatically to b/w mode, if illumination changes to an NIR light sources.

optikron s-series

Optikron GmbH
Jena, Germany
www.optikron.de

micro vision systems

by optikron



M-series HD 720p USB or OTG (1/9")
dia. 4.2 mm or square 4.2x4.2 mm

M-series HD 1080p USB or OTG (1/6")
and M-series CVBS (1/8" CMOS color)
with dia. 6.5 mm or square 6.5x6.5 mm
HQ optics adjustable (M5.5)

modules with 0° and 90° view

key application:

machine vision, automation
metrology, inspection, bioscience,
microscopy



Optikron's m-series camera modules are versatile,
small and available with a wide variety of optics
and housings for an easy integration.

The M-series modules are the smallest cameras
with Full HD or HD resolution. They are often the
basis for customized vision systems of a higher
complexity. For that we are optionally offering
solutions for illumination units for enhancing the
light conditions. A highlight is a HQ lens for a very
high DOF from approx. 1 mm to infinite... image
sharpness for several distances in a wide range
without adjustment.

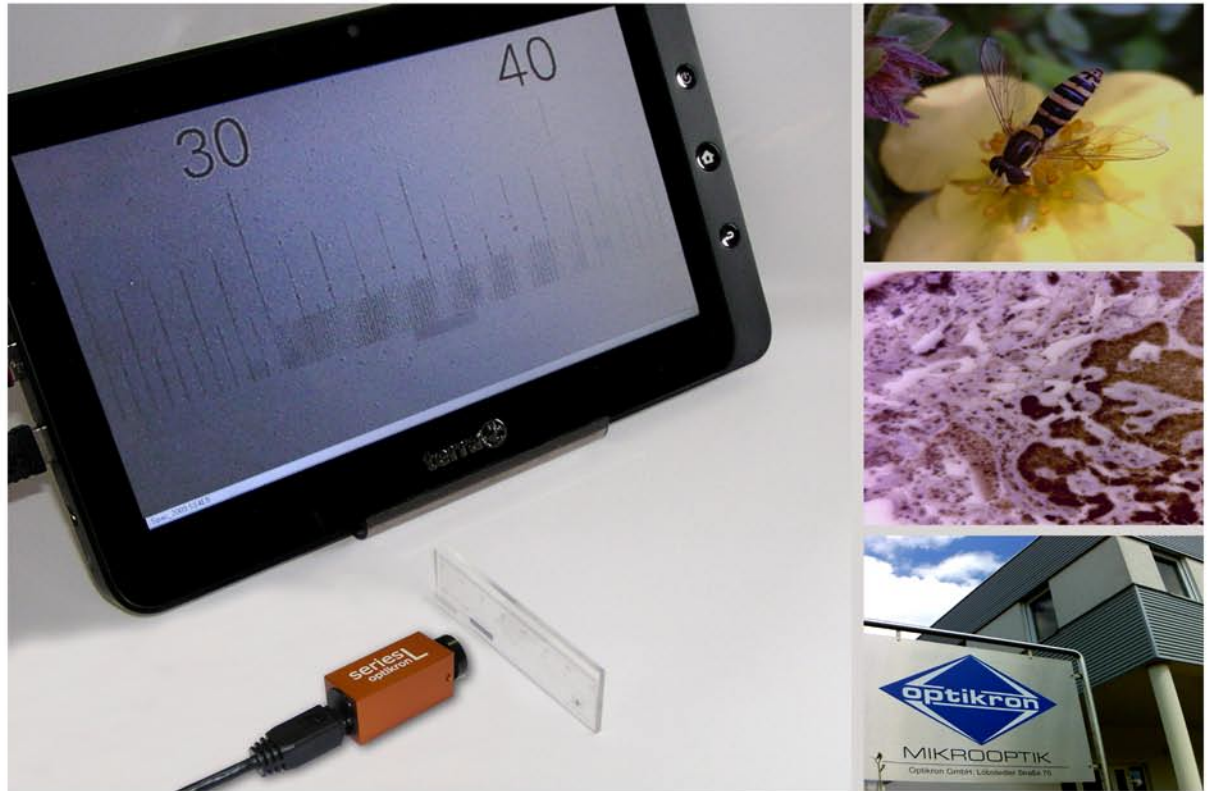
optikron

m-series

Optikron GmbH
Jena, Germany
www.optikron.de

micro vision systems

by optikron



L-series 5MP USB (1/4")
16x16x35 mm

L-series 5MP Pro USB (1/4")
with snapshot-switch and trigger input

L-series 8MP USB (1/3, 2")
22x22x40 mm

L-series 1080p HDMI (1/2, 9")
20x20x60 mm

key application:

machine vision, metrology, inspection,
bioscience, analytics, microscopy



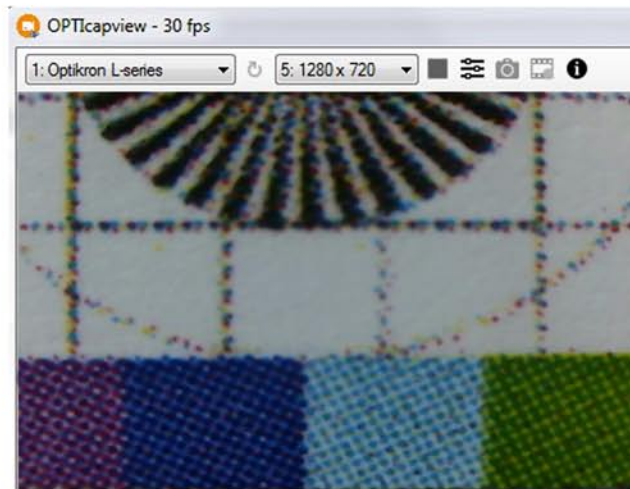
Because of their high resolution, high light-sensitivity and fast auto adjustments are these small cameras very versatile regarding their applications. They show a very high performance in different working surroundings. The L-series cameras can be simply integrated into complex systems, like machines, robots, automation systems. Also they can be used as stand-alone device like a digital microscope or for process control or for assembling and inspection.

...available as standard modules or as
customized solution

optikron l-series

Optikron GmbH
Jena, Germany
www.optikron.de

micro vision systems by optikron



OPTIcapview

OPTIcapview is our freeware viewer software optimized for a simple use of Optikron's micro-cameras.

Functions:

live video view, image settings, resolution setting, switching between different cameras, frame rate information, snapshot, video recording



OPTI grab&measure

Our image processing software offers a wide range of functions for using digital cameras as high efficient tool in quality inspection, production, process control, assembling, analytics, microscopy and documentation.

Functions:

- manual snapshots
- auto grabbing for getting periodic snapshots
- file management
- overlays (cross hair, grid, forms, images with changeable transparency, CAD-files and user defined masks)
- image matching
- counting objects
- drawing and writing into the image
- adding notes and indicators
- measuring distances, angles, radius, areas in images
- direct measuring in live video
- auto creating of a measured value table
- adding a timestamp to the image
- image export (BMP, PNG, JPG, TIF and FPX)
- ...and many more

software

All Optikron micro-cameras with USB interface are UVC devices. There are no special drivers required. The cameras can be easily connected to Windows or Linux PC's and tablets and can be also used on RaspberryPi. By this standard it is easy to integrate the cam's into allready existing software solutions or use them with our viewer software.

Optikron GmbH
Jena, Germany
www.optikron.de

optikron

micro camera series

**micro
vision
systems** by optikron



Camera typ:	Item no.:
S-series USB Ø 2.75 inox, FOV ~ 120°	83-0001-01
S-series USB Ø 2.75 inox, FOV ~ 45°	83-0001-02
S-series USB Ø 3.2 Alu, FOV ~ 120°	83-0002-01
S-series USB Ø 3.2 Alu, FOV ~ 45°	83-0002-02

Specification	
Size of standard housing	Ø2.75x24 mm or Ø3.2x22 mm
Standard cable	approx. 80 cm cable (up to 200 cm upon request) from camera to controller-board, then approx. 1 m USB-cable
Resolution and max. frame rate	400 x 400
Image sensor	1/10" CMOS Color
Image area	1.224x1.212 mm
Pixel size	3.0x3.0 µm
Shutter type	Rolling Shutter
S/N Ratio	> 50 dB
UVC format	MJPEG
Storage temperature	- 30 to 60 Degree C
Working temperatur	- 10 to 45 Degree C
Interface	USB 2.0 (UVC => driver free)
Power source	DC 5 V via USB
Power current	200 mA-max. (DC 5 V)
LED Illumination	no
Miscellaneous	
Lens	FOV ~120° or FOV ~45° IR-cut filter (optional without filter) or customized

**micro
vision
systems** by optikron



Camera typ:	Item no.:
S-series CVBS Ø 2.75 inox, FOV ~ 120°	83-0101-01
S-series CVBS Ø 2.75 inox, FOV ~ 45°	83-0101-02
S-series CVBS Ø 3.2 Alu, FOV ~ 120°	83-0102-01
S-series CVBS Ø 3.2 Alu, FOV ~ 45°	83-0102-02

Specification	
Size of standard housing	Ø2.75x24 mm or Ø3.2x22 mm
Standard cable	approx. 80 cm cable (up to 200 cm upon request) from camera to controller-board, then approx. 10 cm video out, GND, power in
Resolution and max. frame rate	400 x 400
Image sensor	1/10" CMOS Color
Image area	1.224x1.212 mm
Pixel size	3.0x3.0 µm
Shutter type	Rolling Shutter
S/N Ratio	> 50 dB
UVC format	-
Storage temperature	- 30 to 60 Degree C
Working temperature	- 10 to 45 Degree C
Interface	CVBS
Power source	DC 5 ~ 12 V (ext.)
Power current	200 mA max.
LED Illumination	no
Miscellaneous	
Lens	FOV ~120° or FOV ~45° IR-cut filter (optional without filter) or customized

**micro
vision
systems** by optikron



Camera typ:	Item no.:
M-series CVBS, 0°, HQ lens	84-0001-01
M-series CVBS, round, 0°, HQ lens	84-0002-01

Specification	
Size of standard housing	Ø6.5x30 mm or 6.5x6.5x30 mm
Standard cable	approx. 10 cm video out, GND, power in or cable with customized connector
Resolution and max. frame rate	656 x 496 (NTSC/PAL)
Image sensor	1/8" CMOS Color
Image area	1.837 x 1.389 mm
Pixel size	2.8 x 2.8 µm
Shutter type	Rolling Shutter
Dynamic range	56,4 dB
UVC format	-
Storage temperature	- 30 to 60 Degree C
Working temperatur	- 10 to 45 Degree C
Interface	CVBS
Power source	DC 3.3 ~ 5 V
Power current	130 mA-max
LED Illumination	no
Miscellaneous	
Lens	various lenses availbale (HFOV ~60° in standard)

**micro
vision
systems** by optikron



Camera typ:	Item no.:
M-series CVBS, 90° view, HQ lens	84-9001-01

Specification	
Size of standard housing	8x8x30 mm
Standard cable	approx. 10 cm video out,GND, power in or cable with customized connector
Resolution and max. frame rate	648 x 488 (PAL)
Image sensor	1/8" CMOS Color
Image area	1.814 x 1.366
Pixel size	2.8 x 2.8 µm
Shutter type	Rolling Shutter
Dynamic range	60.3 dB
UVC format	-
Storage temperature	- 30 to 60 Degree C
Working temperatur	- 10 to 45 Degree C
Interface	CVBS
Power source	DC 3.3 V
Power current	130 mA-max
LED Illumination	no
Miscellaneous	
Lens	various lenses availbale (HFOV ~60° in standard)

**micro
vision
systems** by optikron



Camera typ:	Item no.:
M-series HD 720p USB, 0°	84-0011-01
M-series HD 720p OTG, 0°	84-0012-01
M-series HD 720p USB, round, 0°	84-0013-01
M-series HD 720p OTG, round, 0°	84-0014-01
M-series HD 720p USB, 90°	84-9011-01

Specification	
Size of standard housing	0° view modules => Ø4.2x30 mm or 4.2x4.2x30 mm 90° view module => 6.5x6.5x30 mm
Standard cable	approx. 200 cm USB-cable fixed at the camera / USB type A to PC (or type B for OTG)
Resolution and max. frame rate	1280 x 720 /30 fps 960 x 540 /30 fps 848x480 /30 fps 640 x x480 /30 fps 320 x 240 /30 fps
Image sensor	1/9" CMOS Color
Image area	1.819 x 1.033 mm
Pixel size	1.4 x 1.4 µm
Shutter type	Rolling Shutter
Dynamic range	68.4dB
UVC format	MJPEG
Storage temperature	- 30 to 60 Degree C
Working temperatur	- 10 to 45 Degree C
Interface	USB 2.0 or OTG (UVC => driver free)
Power source	DC 5 V (via USB)
Power current	170 mA
LED Illumination	no
Miscellaneous	
Lens	various lenses availbale (HFOV ~36° or ~55° standard)

**micro
vision
systems** by optikron



Camera typ:	Item no.:
M-series HD 1080p USB, 0°	84-0021-01
M-series HD 1080p OTG, 0°	84-0022-01
M-series HD 1080p USB, round, 0°	84-0023-01
M-series HD 1080p OTG, round, 0°	84-0024-01
M-series HD 1080p USB, 90°	84-9021-01

Specification	
Size of standard housing	0° view modules => Ø6.5x30 mm or 6.5x6.5x30 mm (without lens) 90° view module => 10x10x30 mm
Standard cable	approx. 200 cm USB-cable fixed at the camera / USB type A to PC (or type B for OTG)
Resolution and max. frame rate	1920 x 1080 /30 fps 1280 x 720 /30 fps 640 x 480 /30 fps 320 x 240 /30 fps
Image sensor	1/6" CMOS Color
Image area	2.7288 x 1.5498
Pixel size	1.4 x 1.4 µm
Shutter type	Rolling Shutter
Dynamic range	73.3 dB
UVC format	MJPEG
Storage temperature	- 30 to 60 Degree C
Working temperatur	- 10 to 45 Degree C
Interface	USB 2.0 or OTG (UVC => driver free)
Power source	DC 5 V (via USB)
Power current	160 mA
LED Illumination	no
Miscellaneous	
Lens	various lenses with M5.5 availbale (HFOV ~55° or ~76° standard)

micro
vision
systems by optikron



Camera typ:	Item no.:
L-series 5 MP USB	85-0001-01
L-series 5 MP Pro USB	85-0001-02

Specification	
Size of standard housing	16x16x35 mm (without lens)
Standard cable	USB cable ~ 1.8 m (or ~ 5 m as option) Micro USB (type B) connector to camera with 3.8V DC out/ USB (type A) to PC with 5V DC in => special cable for DC out of only 3.8V
Resolution and max. frame rate	2592 x 1944 /10 fps 1920 x 1080 /30 fps 1280 x 720 /30 fps 640 x 480 /30 fps
Image sensor	1/4" CMOS Color
Image area	3.651 x 2.744 mm
Pixel size	1.4 x 1.4 µm
Shutter type	Rolling Shutter
Dynamic range	63 dB
UVC format	MJPEG
Storage temperature	- 30 to 60 Degree C
Working temperatur	- 10 to 45 Degree C
Interface	USB 2.0 (UVC => driver free)
Power source	DC 5 V (via USB)
Power current	170 mA
LED Illumination	no
Miscellaneous	<i>L-series 5 MP Pro</i> has additionally 1x input for snapshot switch + 1x trigger input (camera stop/run)
Lens	various S-Mount - lenses availbale

micro
vision
systems by optikron



Camera typ:	Item no.:
L-series 8 MP USB	85-0011-01

Specification	
Size of standard housing	22x22x40 mm (without lens)
Standard cable	SB cable ~ 1.8 m (or ~ 5 m as option) Micro USB (type B) connector to camera / USB (type A) to PC
Resolution and max. frame rate	3264 x 2448 /20 fps 2592 x 1944 /20fps 2048 x 1536 /20 fps 1920 x 1080 /25 fps 1280 x 720 /30 fps 1024 x 768 /30 fps
Image sensor	1/3.2" CMOS Color
Image area	
Pixel size	1.4 x 1.4 μ m
Shutter type	Rolling Shutter
Dynamic range	72.5 dB
UVC format	MJPEG
Storage temperature	- 30 to 60 Degree C
Working temperatur	- 10 to 45 Degree C
Interface	USB 2.0 (UVC => driver free)
Power source	DC 5 V (via USB)
Power current	170 mA
LED Illumination	no
Miscellaneous	
Lens	various S-Mount - lenses available

**micro
vision
systems** by optikron



Camera typ:	Item no.:
L-series HDMI	85-0901-01

Specification	
Size of standard housing	20x20x60 mm (without lens)
Standard cable	HDMI type D + power cable (~80 cm)
Resolution and max. frame rate	1920 x 1080 /30 fps
Image sensor	1/2.9" CMOS Color
Image area	5.51 x 3.1 mm
Pixel size	4.2 x 4.2 μ m
Shutter type	Rolling Shutter
Dynamic range	55.1 dB
UVC format	-
Storage temperature	- 40 to 150 Degree C
Working temperatur	- 10 to 105 Degree C
Interface	HDMI D type
Power source	DC 5 ~ 12 V (ext.)
Power current	5V/ 430 mA-max, 12V/180mA-max
LED Illumination	no
Miscellaneous	
Lens	various S-Mount - lenses available

**micro
vision
systems** by optikron



Camera typ:	Item no.:
Smart S CVBS, 90° view, LEDs	83-0000-01

Specification	
Size of standard housing	5x5x16 mm
Standard cable	approx. 80 cm cable (up to 200 cm upon request) from camera to controller-board, then approx. 100 cm cable with RCA female for video out and DC plug female for power input => LED dimmer switch at the cable
Resolution and max. frame rate	400 x 400
Image sensor	1/10" CMOS Color
Image area	1.224x1.212 mm
Pixel size	3.0x3.0 µm
Shutter type	Rolling Shutter
S/N Ratio	> 50 dB
UVC format	-
Storage temperature	- 30 to 60 Degree C
Working temperatur	- 10 to 45 Degree C
Interface	CVBS
Power source	DC 5 ~ 12 V
Power current	200 mA-max.
LED Illumination	White LED x 4
Miscellaneous	
Lens	FOV ~60°

**micro
vision
systems** by optikron



Camera typ:	Item no.:
Smart M HD 720p USB, 0° view, LEDs	84-0000-01

Specification	
Size of standard housing	∅ 4.8 x 25 mm
Standard cable	approx. 200 cm USB-cable fixed at the camera / USB type A to PC => LED dimmer switch at the cable
Resolution and max. frame rate	1280 x 720 /30 fps 640 x 480 /30 fps
Image sensor	1/9" CMOS Color
Image area	1.819 x 1.033 mm
Pixel size	1.4 x 1.4 µm
Shutter type	Rolling Shutter
Dynamic range	68.4dB
UVC format	MJPEG
Storage temperature	- 30 to 60 Degree C
Working temperatur	- 10 to 45 Degree C
Interface	USB 2.0 (UVC => driver free)
Power source	DC 5 V (via USB)
Power current	170 mA
LED Illumination	White LED x 6
Miscellaneous	
Lens	HFOV ~65°

**micro
vision
systems** by optikron



Camera typ:	Item no.:
Smart L 5 MP USB, 0° view, S-mount	85-0000-01

Specification	
Size of standard housing	Ø 17 x 42 mm (without lens)
Standard cable	approx. 200 cm USB-cable fixed at the camera / USB type A to PC
Resolution and max. frame rate	2592 x 1944 /10 fps 1920 x 1080 /30 fps 1280 x 720 /30 fps 640 x 480 /30 fps
Image sensor	1/4" CMOS Color
Image area	3.651 x 2.744 mm
Pixel size	1.4 x 1.4 µm
Shutter type	Rolling Shutter
Dynamic range	63 dB
UVC format	MJPEG
Storage temperature	- 30 to 60 Degree C
Working temperatur	- 10 to 45 Degree C
Interface	USB 2.0 (UVC => driver free)
Power source	DC 5 V (via USB)
Power current	170 mA
LED Illumination	no
Miscellaneous	
Lens	various S-Mount - lenses available