

KITOTEC®

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Die Profis fürs Detail

Looking for a value-for-money video microscope without PC for visual inspection and quality control?
We can offer you the compact KITOZOOM-HDMI with autofocus, positioning- or measuring tables.



What makes a good video microscope?

What criteria should we use to look for one? It must meet the points listed here: Excellent pictures - simple to operate – depth of focus - large zoom range - good lighting - autofocus feature – XY measurement table suitable for the task of measuring – and: Really good value for money!



The three models in the **KITOTEC HDMI** range offer precisely these qualities.

To minimize the difficulty of choosing, we first inform you of the technical characteristics and operation of the optical system. The following pages describe the three standard models plus the possible options.



The demands on the optical system, lighting, stand and XY measurement table are a result of the inspection- or measuring job. We must take care here to use a magnification which is geared to the required inspection task.



If the following information is insufficient for you to choose the system or find the correct components, please call us. We will be glad to help you put the correct model together.



KITOOZOOM: Optical system and HDMI camera:

A zoom system consists of the following components: zoom unit with 6.5x optical magnification, adapter, accessory lens and C-mount adapter. This is in addition to the KITOCAM HDMI camera with autofocus feature. You do not require an extra PC, but connect the camera directly to a PC monitor with HDMI input.



One of the great advantages of the zoom system is that within the zoom range the working distance (end of lens to test subject) does not need to be changed. The distance is adjusted at the highest magnification level and then remains in force for the entire zoom range. The **KITOOZOOM**'s scope of delivery includes an 0.5x accessory lens. This way we obtain two zoom ranges, which will be entirely sufficient in 95% of all cases. Four additional accessory lenses (0.25x, 0.75x, 1.5x and 2.0x) are available for larger visual fields or higher magnifications.



This camera is a CMOS camera with multiple interfaces (HDMI + WLAN + SD card) and autofocus feature. The camera's image selector is an ultra-high performance Sony CMOS sensor. HDMI + WLAN are used as the data transfer interface to an HDMI screen or computer. A sharp picture can easily be obtained via the HDMI output using the integrated feature for automatic/manual focus. Manual focusing via the coarse-/fine adjustment button on the microscope is not necessary.

With 0.5x accessory lens:

Visual field: 30 mm – 4.5 mm
Working distance: 170 mm
Magnification: 15x to 105x

With 0.75x accessory lens:

Visual field: 20 mm – 3 mm
Working distance: 116 mm
Magnification: 25x to 160x

With 1.5x accessory lens:

Visual field: 10 mm – 1.5 mm
Working distance: 47 mm
Magnification: 50x to 330x

With 0.25x accessory lens:

Visual field: 60 mm – 9 mm
Working distance: 310 mm
Magnification: 8x to 54x

Without accessory lens:

Visual field: 15 mm – 2 mm
Working distance: 85 mm
Magnification: 30x to 215x

With 2.0x accessory lens:

Visual field: 7 mm – 1 mm
Working distance: 27 mm
Magnification: 80x to 450x

KITO 10-HDMI

The **KITO 10-HDMI** model consists of the **KITOOZOOM** zoom unit with HDMI camera, an LED ring light with dimmer (see Page 5), height adjustment using a rack and pinion system which offers quick- and fine adjustment, and the base plate. This 400 x 250 mm large plate is manufactured from 20 mm precision-milled and anodized aluminum. The base plate mounting feet can be individually adjusted in height and fixed. Weight: 10 kg, dimensions: 400 x 250 x 550 – 670 mm.

KITO 10-HDMI scope of delivery:

KITOOZOOM video microscope series

- Order. no. KITO 10-HDMI
- **KITOOZOOM** - grid zoom at six levels
- LED ring light with power pack, dimmable
- includes 0.5x accessory lens
- base plate 400 x 250 mm
- two zoom ranges - twelve zoom levels
- HDMI camera 1920 x 1080 pixels with autofocus



KITO 30-HDMI

The **KITO 30-HDMI** model is a configuration with a 50 x 50 mm XY measurement table and two digital measuring spindles (Mitutoyo Digimatic).

Inspection tasks which only require a simple but accurate distance measurement constantly occur in production or quality control. The KITOCAM HDMI camera is able to show crosshairs in various thicknesses and colors. The crosshairs make precise positioning of the origin possible. Then the dial gage is set to zero and the cross table moved using the dial gage and, after the end point has been determined using the crosshairs, the value is read off. As the dial gages have a data output, the values can be transmitted in a process-safe manner by means of an optional interface.

Please note that this configuration has a precision of $\pm 5 \mu\text{m}$ via the 50 x 50 mm. Alternatively an XY measurement table with SCD system can be used which offers a precision of $\pm 2 \mu\text{m}$.

Weight: 12 kg, dimensions: 580 x 400 x 550 – 670 mm.



KITO 30-HDMI scope of delivery:

KITOOZOOM video microscope series

- Order no. **KITO 30-HDMI**
- **KITOOZOOM** - grid zoom at six levels
- LED ring- and bottom light with power pack, dimmable
- includes 0.5x accessory lens
- base plate with 50 x 50 mm XY measurement table
- inc. two Mitutoyo dial gages
- two zoom ranges - twelve zoom levels
- HDMI camera 1920 x 1080 pixels with autofocus

KITO 40-HDMI

The **KITO 40-HDMI** model is a complete configuration with a separate height-adjustable positioning table. The adjustment range is 80 x 60 mm. The fine adjustment for height is made via the cross table unit. The **KITO 40-HDMI** is the ideal solution for the quick and easy positioning of small parts. As an option we offer a rotation table for the **KITO 40-HDMI** which can simply be placed into the cross table. The glass insert plate of the cross table is then used for the rotation table. We would however like to point out that for very fine positioning jobs in the 0.01 mm range it makes more sense to use a **KITO 10-HDMI** model with an appropriate precision cross slide table. (see Page 5: EK-100 and EK-150 models).

Weight: 13 kg, dimensions: 400 x 250 x 550 – 670 mm.



KITO 40-HDMI scope of delivery:

KITOOZOOM video microscope series

- Order no. **KITO 40-HDMI**
- **KITOOZOOM** - grid zoom at six levels
- LED ring- and bottom light with power pack, dimmable
- 80 x 60 mm height-adjustable cross table
- includes 0.5x accessory lens
- base plate 400 x 250 mm
- two zoom ranges - twelve zoom levels
- HDMI camera 1920 x 1080 pixels with autofocus

KITOTEC®

Illumination units for KITOZOOM

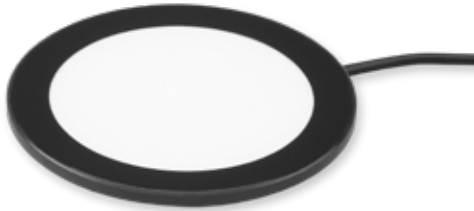
LED-R

The scope of delivery of the systems described on the previous pages includes the LED-R ring light. For many applications LED-ring lights are sufficient for top lighting. The LED-R with its 98 white LEDs, arranged at an angle of 15° in three rows, offers perfect illumination quality. The outer diameter is 67 mm and the opening inside 35 mm. The LED ring light is mounted with three screws on an adapter, which is screwed on to the zoom. Scope of delivery includes a power pack with infinitely variable dimming.

LED ring light for KITOZOOM series
- Order no. LED-R

LED-U

In the KITO 30-HDMI and KITO 40-HDMI models an LED bottom light plate is included in the system price. The LED bottom light is directly incorporated in the two cross tables. The round illumination area has a diameter of 70 mm and the outer diameter is 95 mm.



LED bottom light for KITOZOOM series
- Order no. LED-U

Cross tables for KITO 10-HDMI

Precision cross slide table 100 x 100 mm, fitted with high-precision cross roller bearings. Adjustment is carried out using the side knurled screws in X and Y. The device is installed using L-support bars. The EK-100 is supplied with a glass or metal insert plate depending on requirements. Please note: When using this model a height adjustment of about 80 mm will remain in connection with the 0.5x accessory lens, caused by the large working distance of 170 mm.

Cross table for KITO 10-HDMI
- Order no. EK-100

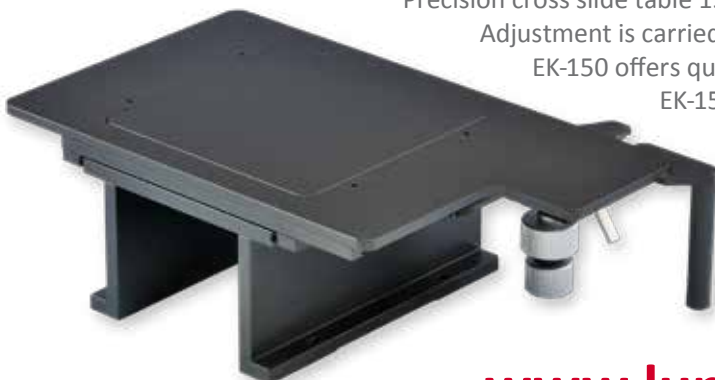
EK-100



EK-150

Precision cross slide table 150 x 150 mm, fitted with high-precision cross roller bearings. Adjustment is carried out using the side knurled screws in X and Y. In addition the EK-150 offers quick adjustment. Mounting is by means of L support bars. The EK-150 is supplied with a glass or metal insert plate depending on requirements. Please note: When using this model a height adjustment of about 80 mm will remain in connection with the 0.5x accessory lens, caused by the large working distance of 170 mm.

Cross table for KITO 10-HDMI
- Order no. EK-150



KITOCAM with autofocus feature

The extraordinary image quality of the **KITOCAM** HDMI camera combined with the autofocus feature is a perfect option for upgrading existing microscopes. For trinoculars with an existing C-mount adapter the camera simply needs to be screwed on. For binoculars we offer various adjustable ocular adapters.

Combine the **KITOCAM** with your existing microscope and experience perfect images.



Upgrade your microscope with the **KITOCAM** HDMI camera. For trinoculars simply screw on to the existing C-mount adapter. For retrofitting binoculars we offer appropriate ocular adapters (see Page 7).

HDMI camera with autofocus feature
Order. no. KITOCAM-2M

KITOCAM HDMI camera technical data

HDMI camera with C-mount screw- simply connect to a monitor and work.

Basic features:

This camera is a CMOS camera with multiple interfaces (HDMI + WLAN + SD card) plus a manual and automatic focus feature. The **KITOCAM-2M** has an ultra-high performance Sony CMOS sensor. HDMI + WLAN are used as the data transfer interface to an HDMI screen or computer.

When using the HDMI output the integrated XCamView camera software is loaded and a camera control panel and toolbar are displayed on the HDMI monitor. In this case the USB mouse can be used to adjust the camera, search and compare recorded images and play videos.

Automatic/manual focus with sensor movement:

The cordless mouse is used to activate the autofocus control panel and move a frame into the area to be automatically focused on. Manual focusing via the coarse-/ fine adjustment button on the microscope is then no longer required. Alternatively the focus can be adjusted using the mouse when the "manual focusing" feature is activated. If the window is closed the autofocus feature is automatically deactivated.

WLAN:

Another option is the transfer of the images using the WLAN from the camera to a PC that is separate from the microscope. To use the WLAN output, disconnect the mouse from the device, insert the USB WLAN-adapter and connect the WLAN connection of the computer to the camera. Now the videostream can be transferred to the computer. The XCAMView software installed on a PC separate from the microscope is now used for control, storage and measurement (The software is included in delivery).

Resolution: 1,920 × 1,080 (1,080p) to match the current HD displays on the market. For an HDMI application an image with a resolution of 2.0 M (1,920 x 1,080) can be recorded and saved. Videos can be recorded and saved as 1,080P videostream (asf format). With the USB WLAN adapter the camera can be used as a WLAN camera. The ultra-modern image processing software is used to play videos and display photos. Plug and Play application support. Ultra-fine color engine with perfect color reproduction capability (WLAN).

With expanded video- and image editing user software, including professional image editing features such as 2D measuring, HDR, stitching, EDF (Extended Depth of Focus), image segmentation und frame counter, image stacking, color composite and denoising.

The camera meets the requirements of various applications and can be used in many areas of industrial inspection, production and research, material analysis, precision measuring, etc. USB cordless mouse / USB WLAN adapter

• HDMI: HDMI output • DC12V12 V/1 A power input • SDC card slot • ON/OFF on-/off switch • LED operation display.

Other specifications for HDMI output

UI operation: With USB cordless mouse for use with the integrated XCamView software

Image capture: JPEG-Format with a resolution of 2 M on SD card

Video recording: ASF format 1,080p 30fps on SD card (8G)

camera control panel: Includes lighting, gain, white balance, color correction, sharpness- and noise suppression control

Toolbar: Includes zoom, mirroring, comparison, freeze frame, crosshairs, browser function

Specifications for WLAN output

UI operation: Software on Windows / Linux / OSX / Android platform

WLAN performance: 802,11n 150 Mbps; RF performance 20 dBm (maximum)

Maximum number of attached devices: 3 - 6 (depending on environment and connection distance)

White balance: Automatic white balance

Color technology: Ultra-fine TM color engine (WLAN) API for image acquisition / control;
Standard SDK for Windows / Linux / Mac (WLAN)

Recording system: Still picture or film (WLAN) software environment (for USB 2.0 connection)

Operating system: Microsoft® Windows® 8/8.1/10 (32 and 64 Bit) OSx (Mac OS X) Linux

PC requirements: CPU: Intel Core2 2,8 or higher

RAM: 4 GB or above

USB connection: USB 2.0 high-speed connection (for cordless mouse only, not for data transmission via USB)

Display: 19" or larger, at least HD resolution

Operating environment/operating temperature: -10° ~ 50° Storage temperature: -20° ~ 60°

Operating humidity: 30 ~ 80 % RH

Storage humidity: 10 ~ 60 % RH

Power supply: DC 12 V/1 A adapter

Scope of delivery:

HDMI camera, power pack, HDMI connection cable, USB cordless mouse. No SD card is included in the scope of delivery. The operating software is in English. The operating manual is available for download in German and English.

Ocular adapter for KITOCAM HDMI camera

Six models with two different diameters and three magnifications each are available as ocular adapters. All the adapters can be adjusted to the focus distance:

108001 - AMA 037	23.20 mm	0.37x
108002 - AMA 050	23.20 mm	0.50x
108003 - AMA 075	23.20 mm	0.57x
108008 - ATA 037	31.75 mm	0.37x
108009 - ATA 050	31.75 mm	0.50x
108010 - ATA 075	31.75 mm	0.75x



Special solutions? Questions are welcome!

The MT series is also available upon request with 200 x 200 mm and 300 x 300 mm , and as a special model with 600 x 600 mm, measuring ranges. From 200 x 100 mm, these measuring tables are available with motorization and control. Should you find yourself unable to accomplish your measuring job with the components referred to here, ask us about a special-purpose solution. A multitude of special stands, XY measurement tables, manual or motorized, and zoom systems with coaxial light reflection and motorized adjustment gives a huge number of approaches to solving the problem. Also available are gauges for Z-measurements or motorized Z-axes with measuring systems.

Contact us.



KIMAG: The measuring magnifier with built-in LED lighting, focusable and 0.1mm measuring scale

Our new LED precision illuminated measuring magnifier with achromatic (chromatic aberration corrected) coated optic system consisting of four elements and two component assemblies. The measurement scale is made of glass and has a 0.1 mm graduation with a measuring length of 30 mm. The housing contains a ring consisting of eight LEDs, which provides for a bright and high-contrast illumination of the measuring field. The conflict between high resolving power and wide field of view was able to be fully resolved in this product, giving efficient, precise control. For higher transmission the lenses are coated with anti-reflection coating.



Outstanding display quality via an achromatic clear glass optical system which is chromatic aberration corrected and free from distortion right up to the boundary area and the comprehensive annular light from the recently developed eight LEDs set new benchmarks in this price range. Delivery includes batteries.



Order no.	KIMAG 10
Magnification:	10 times
Focusable:	Yes
Measuring length:	30 mm
Visual field:	34 mm
Scale graduation:	0.1 mm
Optical system:	Achromatic, distortion-free
Dimensions:	46 x 44 mm
Weight:	74 grams
Accessories:	Standard scale and leather case included in scope of delivery.



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