High Definition Optical Inspection Systems

PRODUCT GUIDE









Optilia

Empowering Your Vision!

Optilias HD Cameras are Innovative, Time Saving and Ergonomic. Combined with the brilliance of Full HD pictures, this is a product truly designed for Precision Inspection Work



W30x Full HD 1080p Camera Microscope

Professional high definition inspection camera microscope equipped with 30x Optical Zoom, Auto Focus, Large Working Distance and Laser Pointer for reliable, ergonomic and fast visual inspection. Connect W30x-HD to a High Definition monitor and take advantage of the astonishing image resolution, high contrast and true colours in your inspection work.

Motorised x30 Zoom optics

The System's on-screen magnification (24" monitor) of 2 - 60x is comparable to common inspection microscopes. If further magnification is needed macro lenses can be added to magnify up to 200x.

Designed for Ergonomic use

The W30x-HD provides ergonomic working position and relief to your eyes, neck and shoulders. The unique FreeSight version features a 500 mm extended working distance and free view to the monitor. By sitting more comfortably and watching the monitor, inspection tasks are no longer so tiresome.

Flexible and Time Saving

Optilia Systems offer great flexibility to users with different inspection and monitoring needs. Together with Optilia's various boom and focusing stands, illumination accessories and software, users gain full control over the working area. The W30x-HD camera microscope signifi-cantly reduces the time spent on inspecting parts compared to other optical visual systems.

Full Control of the Camera Parameters

Image attributes such as zoom, brightness, focus, iris, exposure time and colour are set automatically, yet can also be controlled manually via PC camera control software or independent of a computer using the joystick-based and user-friendly Control Unit.

Hermetically sealed or Antistatic housing

W30x-HD can be ordered with a hermetically sealed optical system and housing for preventing the penetration of dust, dirt or germs into the camera. The E-versions of W30x-HD camera microscopes are made of Antistatic Coated material and safe for ESD-sensitive PCB inspection and rework.

Digital Image Capture on SD-card

Optilia's SD-CAP device offers Full HD Image Capture without need of computer. With a simple click on capture button of the device or press on a foot pedal, the images are easily frozen or saved for further measurement and archiving.

The power of a "click"

Streamline digital image View, Capture, Measurement, Reporting and Archiving with OptiPix™ software. Together with the W30x-HD, OptiPix allows you to work with live and captured images at Full High Definition resolution.

W30x camera delivers Full HD 1080p/60 fps Video

Full HD 1080

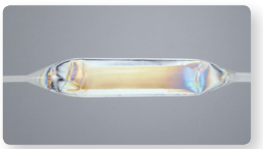


Typical Application Areas

W30x-HD camera microscope is ideal for optical examination and quality control of
- electronics, assembled PCBs, components, soldering
- micro mechanisms, precision mechanics
- stents and balloons

Also

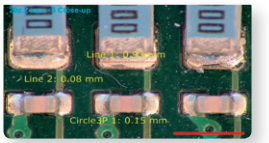
Non-contact dimensional measurements.
Documentation, digital image recording and archiving.
The large working distance also makes it suitable for rework, repair, hand soldering, assembly or gluing jobs.



Plastic balloon, 10x zoom



Stent, 30x zoom, +5



Electronics, 20x zoom, +5

- Motorised Optical Zoom and AutoFocus
- Best Full HD 1080p Image Quality
- Highest Magnification with x30 Zoom Factor
- Self-centering Laser Pointer
- Optimised for Image Analysis and Examination

> The W30x-HD camera microscope significantly reduces the time spent on visual inspection compared to traditional optical systems

M30x Full HD 1080p Optical Inspection Systems

Robust and Reliable Designed for Digital Inspection and Assembly. In–line and Off–line!



Connect the M30x-HD camera to a Full 1080 high definition monitor and take advantage of the astonishing resolution, excellent colour and contrast in your inspection work. Combined with any of Optilia´s Boom, Articulated or Large Access XY-stands, the system offers full control over your working area.

Modular design

The system is versatile and offers great flexibility to users with different inspection needs. M30x-HD together with In-Line XY stand and 4-directional tilt unit is the preferred choice of high quality electronic manufacturers. The system can be equipped with a wide range of illumination options, extra lenses, stands and software.

Camera Control

Image attributes such as zoom, brightness and focus are set automatically, yet can also be controlled manually via integrated camera control Unit.

Digital Image Capture

For capturing still images at Full HD resolution, attach the camera to Optilia's 1080 SD-Card Capture Device or connect the system directly to a computer and OptiPix™ sofware through Optilia's USB 3.0 Frame Grabber.

Designed for maximum Reliability

M30x-HD is made of high quality components, stainless steel and anodised aluminum parts. The camera is designed according to the requirements of industrial manufacturers regarding quality, reliability, time and cost effectiveness.

M30x camera delivers Full HD 1080p/60 fps Video

- ✓ Fast # F1.6 Optics. No need for extra Illumination
- ✓ 30x Optical Zoom with Swift Autofocus
- ✓ Integrated Camera Control
- ✓ Self-centering Laser Pointer
- ✓ Configurable with Antistatic Housing and Laser Pointer



M30x-HD system with 4-directional tilt device and In-Line XY-stand mounted over conveyor in a SMT production line .



Typical Application Areas

M30x-HD macro inspection camera is ideal for visual examination and quality control of

- electronics, assembled PCBs, components, soldering
- connectors, wires, terminals and cables
- machined parts and assemblies
- metals and welding examination
- plastic parts
- Inspection and identification of pollen, insects, stones

Also

Non-contact dimensional measurements.
Documentation, digital image recording and archiving.
The large working distance also makes it suitable for rework, repair, hand soldering, assembly or gluing jobs.

M30x 720p HD plug & play Optical Systems

M30x camera microscope is a cost effective, plug-and-play and ergonomic 720p HD video inspection system producing bright pictures for fast and reliable optical inspection. The device has a powerful motorised x30 optical zoom, swift auto focus, 240mm working distance and an user-friendly camera control unit for automatic or manual adjustment of zoom, brightness and focus.

Save time and cost

By deploying extremely quick auto focus together with Optilia's superior high resolution optics, the time spent on inspecting objects is significantly reduced compared to other video systems.

Easy connection

The camera is easily connected to a Full-HD monitor of relevant size through HD component video outputs or digital HDMI when atttached to the SD-Card Capture Device. The integrated Control Unit enables you to set the camera to fully automatic mode or to adjust basic image attributes, such as brightness, focus and zoom factor.

Digital Image Capture

For capturing still images attach the camera to Optilia's SD-Card Capture Device or connect the system directly to a computer and OptiPix™ sofware through Optilia's USB 3.0 Frame Grabber.



- ✓ Plug and Play
- ✓ High Magnification
- ✓ 30x Optical Zoom
- ✓ Fast Auto Focus
- ✓ Cost Effective

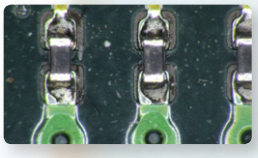
Typical Application Areas

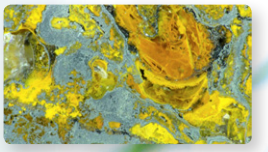
M30x-HD inspection systems are ideal for optical inspection of
- electronics, assembled PCBs, components, soldering
- connectors, wires, terminals and cables
- metals and welding examination
- plastic parts, rubbers, minerals

Also

Documentation, digital image recording and archiving.
The large working distance also makes it suitable for rework, repair, hand soldering, assembly or gluing jobs.

Cost Effective
Easy to use
Professional


0402 Resistors, 30x zoom+5


Iron oxide mineral 20x zoom


Electronics, 20x zoom, +5

W30x WHD30 | M30x MHD30

Unique FreeSight model options

Optilia FreeSight options, with 490mm and extended 1200mm working distance are offered as a choice for W30x and M30x camera microscopes.

Optimum ergonomics

Large working distance of the FreeSight variants opens up totaly new possibilities for configuring ergonomic and comfortable work stations with the payback of improved productivity and efficiency.

The extra high camera mounting creates a clutter free working space with comfortable clear viewing of the monitor perfect for working on objects under inspection.

W30x and M30x FreeSight

The W30x and M30x FreeSight models have a powerful 30x optical zoom, 350 to 490mm working distance range and a swift auto focus for clear examination of your object in 1080p Full High Definition resolution.

WHD30x and MHD30

WHD30 and MHD30 cameras have a powerful 30x optical zoom, swift autofocus and 1200mm extended working distance. They can be ordered with antistatic or hermetically sealed housing for clear examination of your objects in real High Definition.



Optilia M30x FreeSight Inspection System with Bench-top Boom Stand

Maximum comfort and ergonomics with 490-1200 mm working distance!



Working Distances with close-up +10, +5, Standard lens and FreeSight



Camera Control



Optilia Camera Control Units are user friendly and ergonomically designed devices for direct control of Optilia High Definition Camera Microscopes with our without use of a PC. Control Units feature remote control of Optical Lens System and Image Sensor attributes. Choose between Software PC Control, advanced stand-alone Joystick Control and built-in Camera Control depending on your needs.

Industrial Grade Aluminium Housing Camera Controls

Camera and image attributes such as focus, brightness, shutter, iris and white balance (colour) can be set to automatic control or be adjusted manually. Optical magnification of the image is simply changed by swift and motorised zoom function of the lens system.



Advanced Joystick Control for W30x Camera series



Integrated Basic Control for M30x Camera series

Zoom Factor Display and Preset/Recall Configuration

Optilia Joystick- and Integrated Camera Control devices feature software option for Cross Line Overlay and Zoom Factor Display, crucial functions for performing calibrated non-contact geometrical measurements on the picture.

The Preset/Recall option enables you to pre-define camera configurations, save them in the memory and instantly recall and toggle by pressing one button.

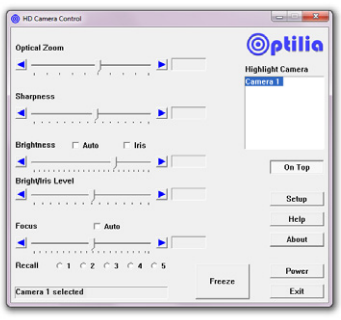
Hands free operation

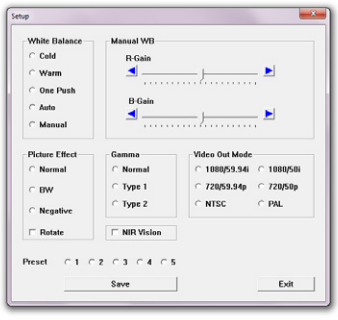
An industrial grade foot switch is available as an option for hands-free control of Magnification (Zoom), Brightness and Focus.

PC Control Software

PC Control Software is available for direct control of the W30x Camera series via USB port of your computer. Both Camera and Lens parameters like brightness, shutter, white balance (colour), gamma, picture effect, output formats, zoom and Iris can be set by PC Software Control.

> Advanced Control of the Camera produces the Best Image





User interface of PC Control Software

OptiPix™ software for Image Capture, Measurement and Reporting

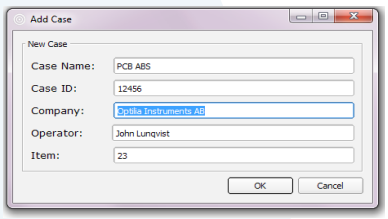
Optilia OptiPix™ is a Digital Image View, Capture, Measurement, Reporting and Archival software with focus on user friendliness. OptiPix together with Optilia HD Inspection systems is a powerful, easy-to-use and cost effective tool for Engineering, Production and R&D.

The software platform OptiPix

OptiPix is a software platform designed for Optilia Inspection Systems to help you take full advantage of digital image technology.

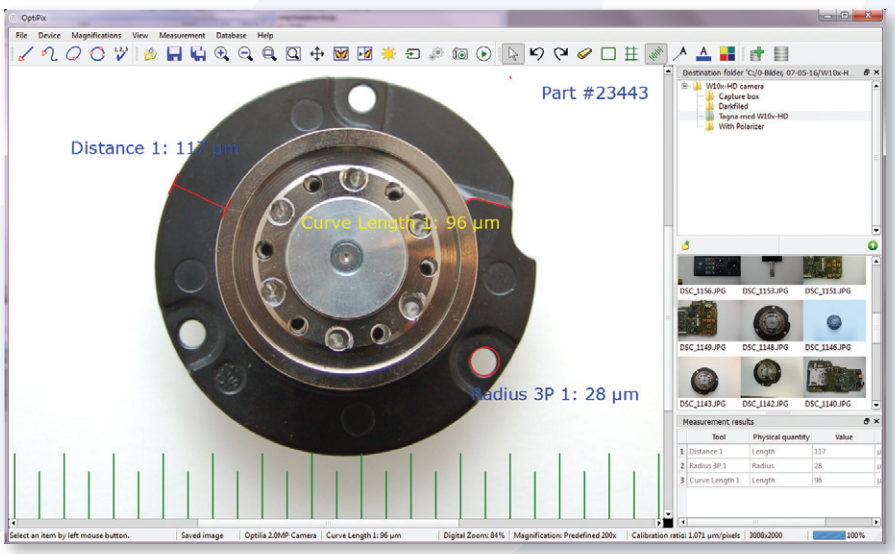
Workflow

Connect your HD Camera to your PC or Laptop via USB 3.0 Frame Grabber and view the live picture in OptiPix. Select a pre-defined magnification or define your preferred magnification and calibrate them. Use the powerful overlay functions like Grid, Ruler or Digital Graticule on your live image. Zoom in on your region of the interest. Capture still pictures via the software or by foot-switch. Analyse, measure, add annotations and save! Create Reports or Certificates. Archive your results using file system of your computer or the built-in Case Managing Database.

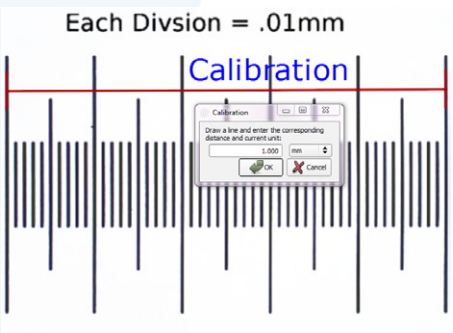


OptiPix is available in several languages among others English, German, Spanish, French and Chinese.

Connect your device → Use pre-defined calibrations or define your own → Analyse on live image, use overlay functions or compare windows



OptiPix main interface window



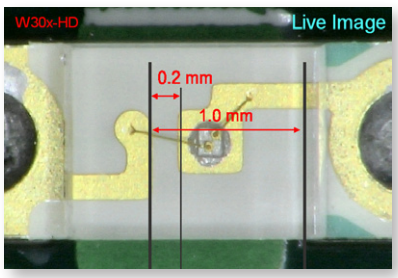
Calibration window

"Software platform designed for all Optilia systems

Overlay functions

OptiPix lets you define and overlay grids, micrometer scales and custom-designed Graticules on live image to make quick analysis without capturing the image.

Cross-hair, Rectangles and Rulers can also be screened on the live image.



Overlay of Digital Graticule on live image

Digital Graticule

Image files containing measurement lines, geometry figures, patterns, annotations, CAD views, etc. can be blended with and displayed on the live picture.

Organise with Database

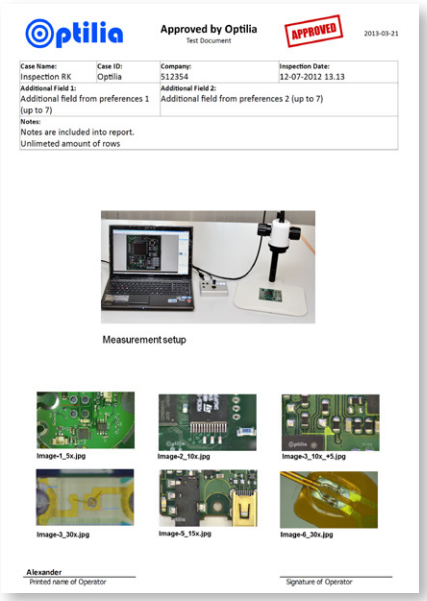
In addition to the Windows File System, Images and all other data can be saved and organised in the integrated Database of OptiPix. Thousands of Cases and Projects can be created, organised and managed by the secure and powerful SQL Database engine of the OptiPix software.

Record Audio

Add voice or audio to your cases and projects in OptiPix Database simply by using microphone of your computer.

Reports and Certificates

Measurement results, annotations and grabbed pictures can be exported to a report and be printed in pdf formats.



Printed Report automatically created by OptiPix

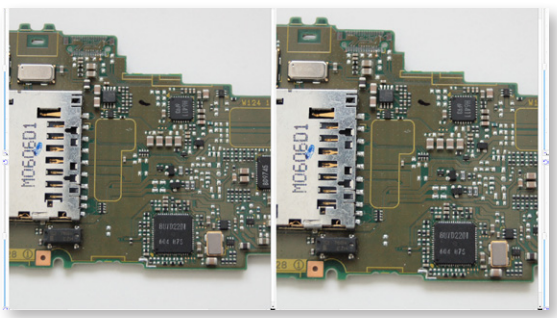
Capture still pictures and perform geometrical measurements

Archive using file system or the built-in database

Annotate, document, certify and make reports

Compare Images

OptiPix allows you to compare live or 2-4 still images side by side with a reference image. The reference is automatically stretched to the same size as the live.



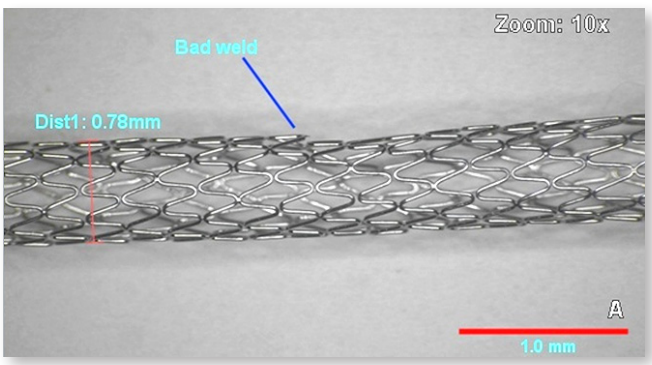
Compare images window

Calibrated Measurements with Annotations

Calibrated measurements of Distance, Radius, Curve, Length, Area, Polygon and Angles can be made on captured images. OptiPix also provides an item counting tool. The Measurement results are saved and linked to the image automatically.



Measurement Tools



Calibrated measurement and annotation made on stent

> Perform Non-Contact Calibrated Measurements

Digital Image Capture

Capture still images on external SD-card or directly in your PC.

Grab Full HD quality still pictures on a removable SD-card without use of PC or connect your Optilia HD camera microscopes directly to a PC or laptop using the Full HD USB 3.0 Frame Grabber. Loop your live picture and display it on a LCD monitor through HDMI simultaneously. Optilia offers the following three options for Digital Image View and Capture applications with or without PC connection.



HDMI Output

Stand-alone Full HD 1080p SD card Image Capture Device

Capture and store up to 32GBs of uncompressed Full HD quality still images on a SD card before downloading to your computer. Scroll between stored pictures and monitor them on the LCD monitor via menu system of the device.

Stand-alone Full HD 1080p SD card Image Capture Device with Digital Graticule

Design your custom "Digital Graticules" containing measurement scales, patterns, annotations etc. and save them on the same SD card to overlay on live video! Capture device automatically distinguishes Digital Graticule images from other pictures and lets you select and confirm the object to superimpose on live video.

Display of Reference Images via USB port

SD-card Image Capture Device allows you to access still images on the SD-Card and simultaneously display them on a second monitor. An extremely useful function when you need a "reference image" next to the live image of your inspection object.

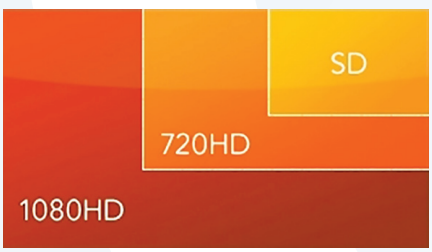


HDMI Output

Desktop USB 3.0 HD Frame Grabber for Laptop or Desktop PCs

Capture Full HD uncompressed video and still pictures via USB 3.0. Plug this external Frame Grabber to your PC and capture the live image in Full HD digital format into your Optilia OptiPix software. This frame grabber is powered from the USB 3.0 connection and is fully DirectShow™ and QuickTime™ compatible.

"Digital Image Capture at Full 1080HD quality



Illumination



Optilia´s extensive range of illumination products helps you to get the best quality images under all conditions. We have lighting solutions for incident, transmitted, dark-field and coaxial illumination. We provide diffusers, polarisers and other optical filters for reflection removal and contrast enhancement. All Optilia illumination devices are made using ultra bright long-life white LED light sources.

White RingLight



Optilia's RingLights for HD camera microscopes are available in two versions; 40 LEDs for 55–120 mm working distances and the long range 80 LEDs for 120– 500 mm working distances. Both RingLights are delivered with a compact control unit featuring ON-OFF switch, brightness control and two outputs with segment control of LED groups. Users can toggle 4 groups of LEDs clockwise or anticlockwise. Optional light Diffusers or Polariser/Analyser filters can be assembled on front of the RingLights.

UV Fluorescent RingLight



This fluorescent RingLight creates a flicker-free ultra violet illumination in the range of UV-A (320 - 400 nm). Thanks to its high- frequency control and high quality bulb the RingLight ensures high intensity and very homogenous illumination of the objects. UV light is used for inspection of conformal coating of PCB, authentication, paints, for analysing minerals and within forensic work. UV fluorescent RingLight is delivered with a compact control unit featuring ON-OFF switch and brightness control.

Spot light



Optilia spotlights are available in single and double arm versions. They are equipped with semi-flexible arms (gooseneck) and segment control unit with ON-OFF switch, brightness control and two outputs.

Bright field Transmitted



Milky glass diffuser with 20 white LEDs for homogenous and flicker-free bright field transmitted illumination. The compact control unit features an ON-OFF switch, brightness control and two outputs for connection to other LED illumination units.

Bright field Transmitted Polarised



Same device as Bright field Transmitted but equipped with a linear Polariser and an Analyser. This illumination technique can reveal details not visible using incident or transmitted white light in some cases.

Dark field Transmitted



Dark field is a simple yet effective illumination technique for inspection of unstained plastic parts, fibers, hairs, minerals, crystals, thin polymers. This illumination is also useful for examining external details, such as outlines, edges, grain boundaries and surface defects. Optilia Dark Filed transmitted LED Illumination kit contains a power LED light source with fiber optics RingLight, dark field adapter with protection glass and an object holder.

Coaxial Incident Diffuse Light



With coaxial illumination, flat, reflecting object surfaces become visible. This illumination is especially useful for inspection of integrated circuits and semiconductor wafers, metals and materials analysis, and any task requiring even illumination of polished surfaces.

High Resolution Optics for excellent quality

Powerful Motorised Optical Zoom
Select between W30 or M30 or HD30 with x30 optical zoom depending on optical magnification your application requires.

Auto Focus optics
Allows inspection of your objects at different heights and magnifications fast and without use of hands.

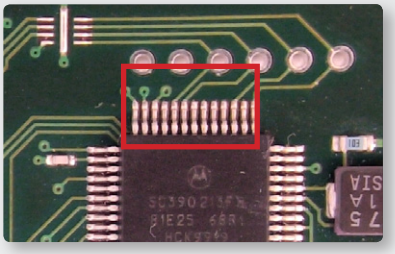
Longer Working Distances
Get 245 mm as standard and 500mm with FreeSight

Large Depth of Field
Optilia systems are originally designed for large depth of focus. In addition, WHD30 and W30 cameras can be set tIris-mode. Iris size of the optics (F#) can then be controlled manually to create even more depth of focus.

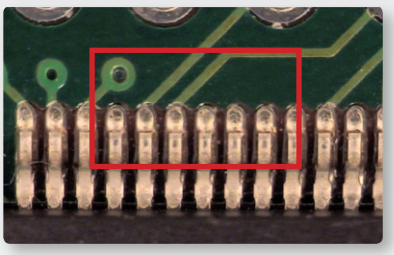
Additional Macro Lenses
Select any of +2, +5 and +10 diopter macro lenses (close-up) if your application requires higher magnification than standard.



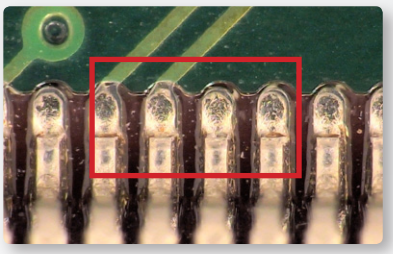
Polarisation optics for Glare Removal
Remove glare and reflections from your picture by adding polarisation filters to your optical system. Impact of polarisation filter is illustrated in below pictures.



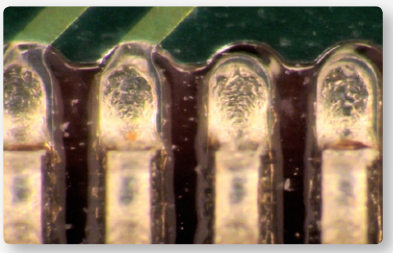
Zoom x1



Zoom x10



Zoom x20

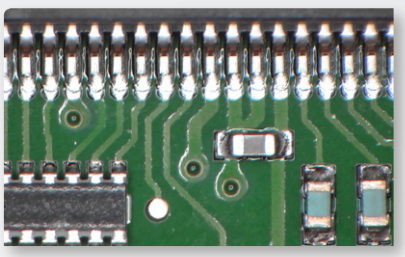


Zoom x30

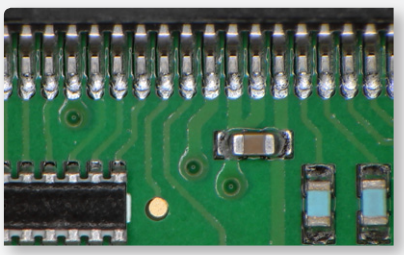
Polarisation filter kit



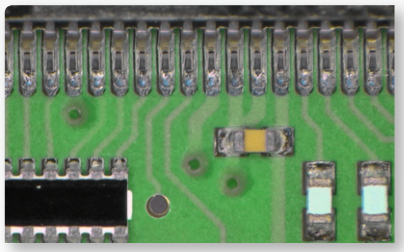
Regular RingLight without Polariser



RingLight with 50% Crossed Polariser



RingLight with 100% Crossed Polariser



Powerful x30 Zoom with Auto Focus

Stands for All Applications

Optilia provides a wide range of different industrial-grade Bench-top and In-line stands. Optilia stands can be equipped with Rack&Pinion vertical Z-movement, 90º camera mounting adapter and 4-directional tilt unit for side-view inspection.

Boom Stands, Double-rod and Single-rod

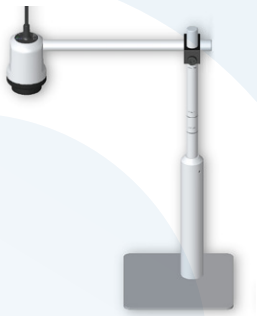
Stable and precise design with up to 600mm Y and Z-travel. Double-rod stand can be equipped with Rack & Pinion for precision manual focusing of the camera and 4-directional camera Tilt Unit for side-inspection. All Optilia Boom stands provide straight or lateral Camera mount.



Double-rod boom stand



Single-rod Boom Stand



Single-rod Boom Stand with Height Extender

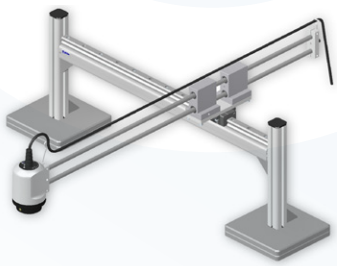


Single-rod Boom Stand with Table Clamp

Large access In-Line and Desk-top XY-stands

Designed for precise XY translation of Camera microscopes over conveyors or large working areas. In-line stand allows optical inspection without moving or touching the PCB. Up to 1000mm smooth and accurate XY-travel over working area can be achieved. XY stands are made of high quality stainless steel and anodised aluminium parts and safe for use in EPA environments.







In-line and Desk-top XY stands can be ordered at custom defined X, Y, and Z-lengths with 4-directional tilt unit.

Focusing stand

Microscope type stand with precise rack & pinion vertical travel for Focus Adjustment at high magnification inspection. Base of the stand is equipped with a reversible black & white round disc.



Articulated stands

Long-reach parallel arm design with articulated knuckle and lockable gas spring for ultimate flexibility. 920 mm working range.



Stand options for all applications

System examples for HD Product series

Optilia HD Inspection systems can be ordered as pre-configured delivery kits or be

W30x FreeSight Kit
with Joystick Control Unit



Product no. OP-209 012
W30x FreeSight, Full HD 30x zoom Inspection System with Laser Pointer Stand and Joystick Control Unit

Included items:
- Full HD Camera, 1080P with 30x zoom, laser pointer, 500mm working distance
- Camera Control Unit with Joystick
- Bench-top Single-rod Boom Stand, Extended height

M30x EasyView 1080p Kit
with laser Pointer



Product no. OP-109 011-F-L
M30x-HD, Full HD 30x zoom Inspection System with Laser Pointer, stand and Control Unit

Included items:
- Full HD Camera, 1080p with 30x zoom, laser pointer, 245mm working distanc and integrated Control Unit
- Bench-top Single-rod Boom Stand

M30x EasyView 720p Kit



Product no. OP-109 011
M30x-HD EasyView, 30x zoom 720P HD Inspection System with Stand and Control Unit

Included items:
- HD-camera 720P with 30x zoom, 245mm working distance and integrated Control Unit
- Bench-top Single-rod Boom Stand

** Montiors shown on picture are not inculded as standard*

Product matrix

OP-209 010, W30x HD



OP-209 015, W30x FreeSight
OP-209 005, WHD30 1200mm WD



OP-109 013, M30x EasyView

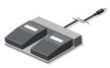


OP-109 014, M30x FreeSight
OP-109 005, MHD30 1200mm WD





OP-009 020, Camera Control Unit
OP-009 220, Camera Control Unit with Double Save/Recall, Cross-line and Zoom Display



OP-009 019, Foot Switch for Camera Control Unit



OP-006 660, Single-rod Boom Stand



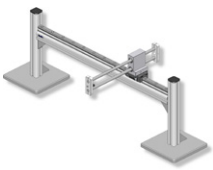
OP-006 199, Double-rod Boom Stand



OP-006 599, 90 deg. Camera Adapter for Boom Stand



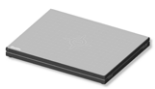
OP-006 663, Single-rod Boom Stand, Wall mount



OP-006 338, Bench-top XY Stand



OP-006 334, 4-directions Camera Tilt Unit



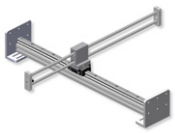
OP-006 500, XY-floating Table
OP-006 501, XY-floating Table with Position Lock



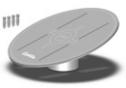
OP-006 505, Foot Switch for XY Floating Table with Position Lock



OP-006 662, Single-rod Boom Stand, Table Clamp mount



OP-006 333, In-line XY Stand



OP-006 502, PCB tilt table, ESD-protected
OP-006 702, PCB tilt table, ESD-protected with electromagnetic position lock



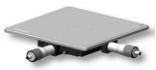
OP-006 670, Single-rod Boom Stand Bench-top Extended height for FreeSight



OP-006 201, Focusing stand fo HD cameras



OP-006 328, Weight Less Parallel Arm



OP-006 109, Precision large-area XY-board ESD protected

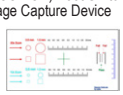


OP-009 080, SD-CAP Full HD SD-card Image Capture Device

OP-009 081, SD-CAP Full HD with Digital Graticule



OP-006 401, Foot Switch for Image Capture Device



OP-006 400, Digital Graticule (custom designed)



OP-006 310,Desk-top USB3.0 HD Frame Grabber with OptiPix Lite



OP-006 190, Aluminum Transport Case, 450x350x250mm with Foam Inlet



OP-009 336, Aluminum Transport Box 600x400x410mm with Foam inlay



OP-006 119, Optipix Full
OP-006 121, Optipix Full with Data Base



OP-006 369, USB Image Capture Foot Switch for OptiPix



OP-009 304, +2 Diopter Close-up Lens (f=500mm)



OP-009 305, +5 Diopter Close-up Lens (f=200mm)



OP-009 308, +10 Diopter Close-up Lens (f=100mm)



OP-006 608, Polarizer, Linear, 58mm



OP-006 382, Lens protection & UV filter, 58mm



OP-006 375, Polarization filter with analyser for RingLight 80 LED system



OP-006 376,Diffuser for Ring-Light 80 LED system



OP-006 368, White Ring-Light Set, 80 LEDs, Segment control with Dimmer, WD 120-500mm



OP-006 380, Polarisation filter with analyzer for RingLight 40 LED system



OP-006 383,Diffuser for RingLight 40 LED system



OP-006 385, White Ring-Light set, 40 LEDs, Segment control with Dimmer, WD 60-120mm

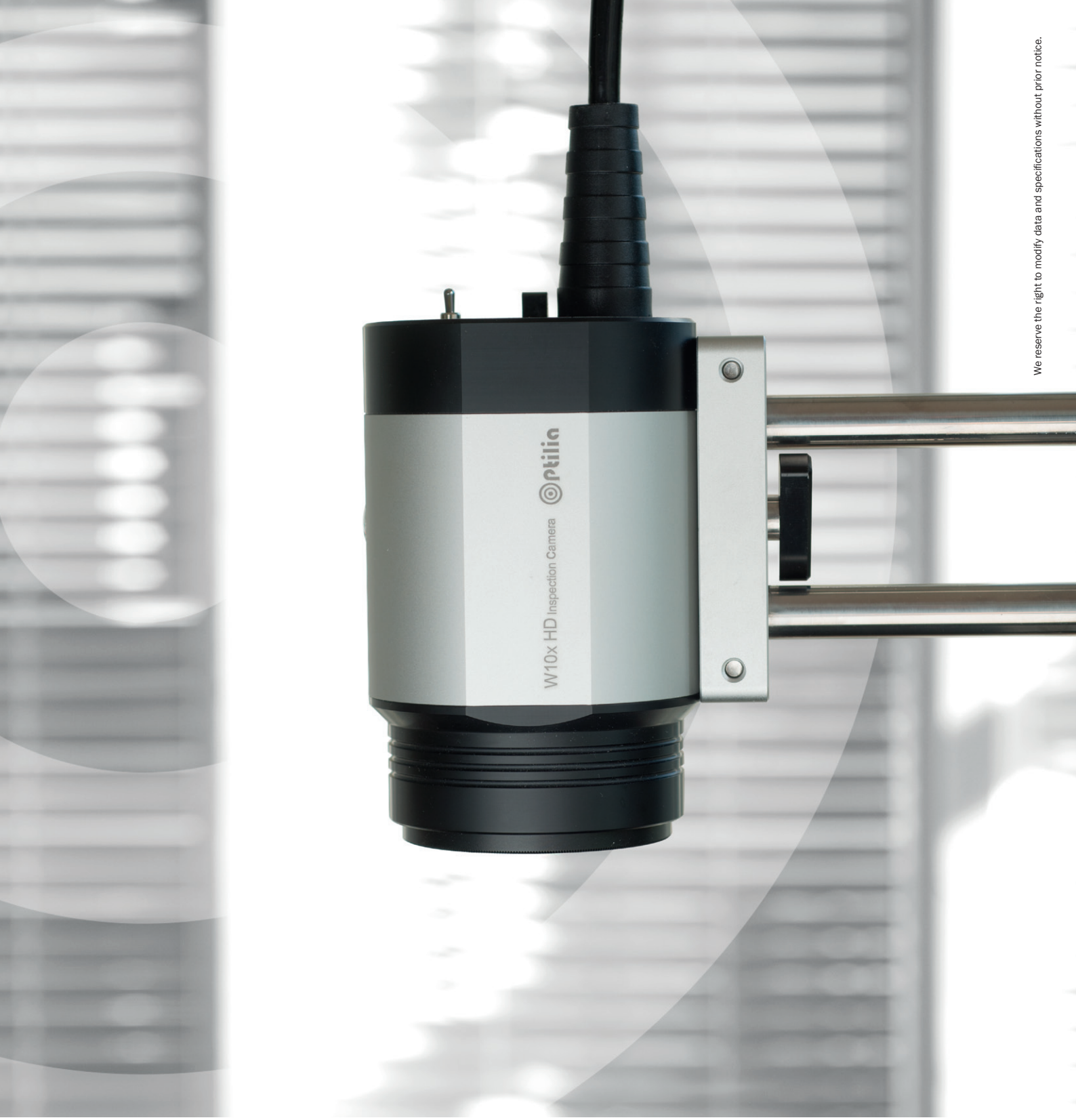
OP-006 381, UV Fluores-cent Ring-Light Set

OP-006 370, Bright Field transmitted LED illumination kit

OP-006 387. Bright Field Polarized transmit-ted LED illumination kit with rotatable analyser

OP-006 378. Double-arm Spot-light incl. Segmental control unit and power supply

OP-006 388. Dark Field transmitted LED Illumination kit



We reserve the right to modify data and specifications without prior notice.

Optilia

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