

# Digital Microscope U50s

Latest 4K60 Technology!



## Configurable, High-Resolution Optical Inspection

4K Digital Microscope with 60fps Video Technology Powered by INSPECTIS®

**INSPECTIS**

Quality of Inspection

# Ultra HD 60fps video

## MORE NATURAL IMAGES

The U50s creates vivid 4K video at 60 fps and low latency.

Video's high refresh rate maintains image coherence and stability, reduces motion blur, and provides smooth and dynamic images of especially fast-moving objects.



**4K 60 FPS**

## Breakthrough Technology

In addition to its high frame rate, U50s sensor provides higher sensitivity and higher dynamic range than previous 4K cameras.

Industry-leading 4K60 signal processing with exceptional flicker and flare reduction for best image quality.

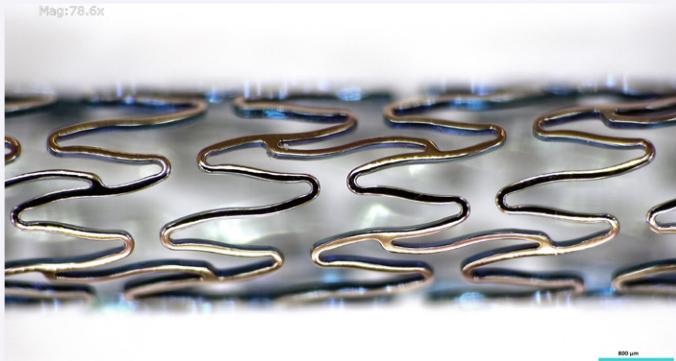
*"The Last Microscope You'll Ever Need!"*

# SUPERIOR OPTICS

## FAST AND ACCURATE

First class F1.6 - 4.8 optics. Advanced high resolution motorised zoom lens with 7-blade aperture and fast auto-focus. 225 mm free working distance with 25:1 optical zoom and 2x digital zoom.

210 mm to 4.0 mm field of view equaling to 2.9x to 151x on-screen magnification. Configurable to 1730x on-screen magnification equal to 0.35mm field of view with +56 diopter lens.



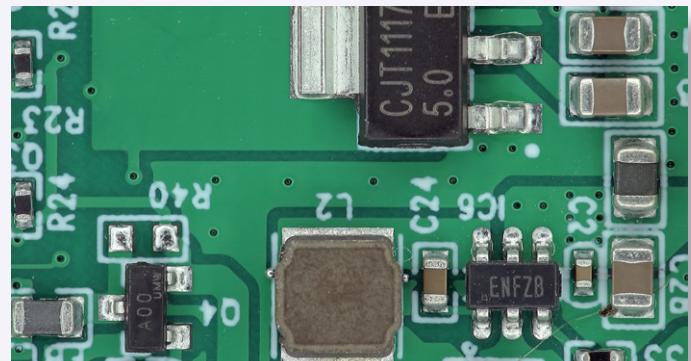
Stent, x26 Zoom with +5 Macro, 103x Mag.  
Incident diffuse ring-light + bright-field transmitted



Forensic, x20 Zoom, 31x Mag.  
Incident white LED sharp ring-light + polarisation filter



Grains, x12 Zoom with +5 macro, 36.8x Mag.  
Incident diffuse ring-light



Capacitor, x30 Zoom with +5 macro, 152x Mag.  
Incident white LED sharp ring-light + polarisation filter

### Superior Lens Design

High-resolution lens design of U50s maintains image clarity and resolution power whether you zoom in for high magnification or zoom out for a large field of view.

*"Optimised for Accurate Inspection of Fast Moving Objects"*

# Advanced Controls

## FOR EASE OF USE

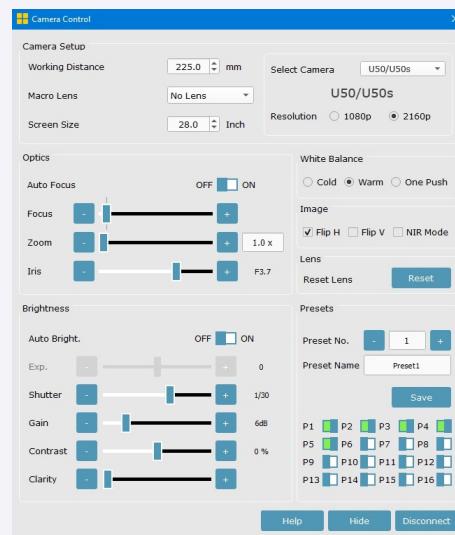
Direct access to basic camera and lens attributes like zoom, aperture size, and colour balance via on board buttons. Full control of all camera and lens attributes by external consoles or by INSPECTIS® software.

A laser pointer helps the operator quickly locate the center of the object field.



On-board Controls

Software Control



Control Consoles



### Memory setup and quick recall

1 to 16 camera and lens configurations can be stored in memory for recall through P1 to P16 software hot-keys. 2 memories are also available on the advanced control console.

# Highly Configurable

## DESIGNED FOR PRODUCTIVITY

Configurable with a wide range of industrial grade Stands and Mounts for your real needs.



### Maximum Flexibility

Modular design of U50s allows setting up the inspection system with any of the Inspectis' industrial grade stands, mounts, lenses, software and illumination systems.

*"Configurable, Endlessly Versatile!"*

# Quality & Standards

## ROBUST & RELIABLE

Industry grade long lasting digital microscope in robust aluminium housing. Small form factor and excellent cable management thanks to its single cable design. Functional and ergonomic design. Designed according to industry standards.



### Technology

Industrial build quality inside and out. Designed and manufactured according to ISO 9001 and ISO 13485 standards.

*"Winner of the 2025 New Product Introduction (NPI) Award"*

# Optical Data

## FOR ACCURACY & PRECISION

The system's standard optics produces ~ 2.9x - 150x magnification (on 28" monitor) maintaining high resolution power. If further magnification is needed, a wide range of diopter Macro Lenses can be added to magnify up to 1737x equal to x600 optical magnification or 0.35mm field of view.

Lens	Zoom Factor	Magnification On-screen	Magnification Optical	Field of View [mm]	Working Distance [mm]	Resolving Power [LP/mm]
Standard	x1	2.9 x	1.0 x	210	> 225-185	5
Standard	x2	5.8 x	2.0 x	105	> 225-185	10
Standard	x5	13.6 x	4.7 x	44.8	> 225-185	22
Standard	x10	27.1 x	9.4 x	22.4	> 225-185	45
Standard	x15	37.2 x	12.9 x	16.3	> 225-185	64
Standard	x20	51.5 x	17.8 x	11.8	> 225-185	90
Standard	x25	64.3 x	22.2 x	9.5	225-185	115
Standard	x30	72.7 x	25.1 x	8.4	225-185	115
Standard	x35	83.5 x	28.9 x	7.3	225-185	115
Standard	x40	98.2 x	33.9 x	6.2	225-185	115
Standard	x45	119 x	41.1 x	5.1	225-185	115
Standard	x50	151x	52.2 x	4.0	225-185	115
+2	x1	8.2	2.8	74	> 154-120	12
+2	x50	219 x	75.3 x	2.8	154-120	140
+5	x2	12.4 x	4.3 x	49.00	> 95-85	15
+5	x50	320 x	110.5 x	1.90	95-85	200
+10	x2	18.3 x	6.3 x	33.20	> 58-48	35
+10	x50	471 x	163 x	1.29	58-48	250
+28	x15	252 x	87 x	2.41	> 18-16.5	400
+28	x50	1013 x	350 x	0.60	18-16.5	450
+56	x15	434 x	150 x	1.40	> 18-17.5	510
+56	x50	1737 x	600 x	0.35	18-17.5	650

Easy image capture and sharing options makes collaboration, reporting and training easy tasks.

### Pre-calibrated

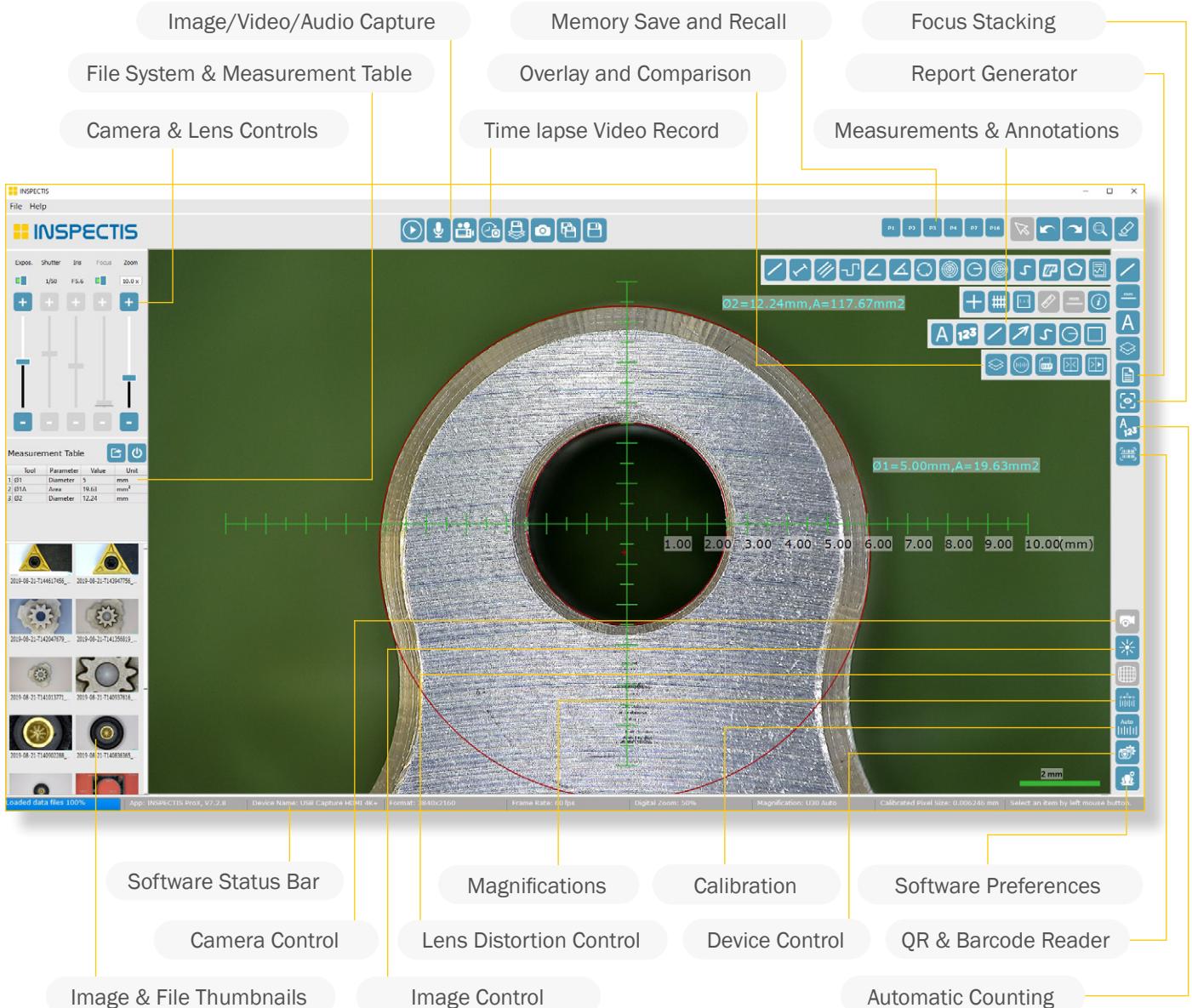
A wide range of extra lenses, pre-calibrated in INSPECTIS© software, ensure optimum results for your application considering field of view (magnification), resolution power and working distance.

*"Reduce the Time Spent on Inspection"*

# Software

## POWERED BY INSPECTIS®

Powerful yet easy-to-use software with streamlined workflow and pre-calibrated optics for live video streaming, camera control, capture, analysis, measurement and reporting.



### Intuitive & Efficient

Icon based graphical user interface and powerful video processing engine. Advanced tools for zoom tracking, geometrical measurements, image overlays, comparisons, time laps video recording, depth of focus extender, automatic object detection and counting, DXF editor, drawings, annotations and reporting.

# INSPECTIS® LEVELS

INSPECTIS® software is supplied in 4 functionality levels, Basics, Pro, OAI and ProX.

Feature	Basics	Pro	OAI	ProX
Live image view, freeze and capture	•	•	•	•
Full screen live image view	•	•	•	•
Record video and audio		•		•
Digital zoom of still images and live video	•	•	•	•
Flip image vertically/horizontally, b/w conversion and enhanced contrast	•	•	•	•
Save multiple frames to one picture	•	•	•	•
Add comments linked to images	•	•	•	•
Print images or send files by email	•	•	•	•
File folder system management	•	•	•	•
Multilanguage interface	•	•	•	•
Direct camera and lens parameters controls	•	•	•	•
16 Memory pre-sets and recall for camera and lens configurations	•	•	•	•
Define and calibrate custom magnifications	•	•	•	•
Automatic calibration and tracking of the entire zoom range of the camera	•	•	•	•
Import and calibrate external images	•	•	•	•
Automatic lens distortion correction in live image	•	•	•	•
Object counting	•	•	•	•
Distance measurement	•	•	•	•
Area, length, perimeter circle, angle, curve length and polygon measurements		•		•
Select, move, adjust, erase, undo/redo measurements and annotations	•	•	•	•
Overlay grids, rectangle and crosshair on live image	•	•	•	•
Annotation and objects counts on Image	•	•	•	•
Drawing tools like rectangle, ellipse, curve, line and arrow		•	•	•
Password for supervisor lock software preferences and camera settings	•	•	•	•
Calibration tracking error compensation	•	•	•	•
Generate reports and certificates with images and measurements	•	•		•
Automatic Barcode, QR and Datamatrix scanner and Excel report			•	•
Auto snap to measurement lines, ends, corners and centres		•		•
Export performed measurements (TXT and EXCEL)		•		•
Overlay 2-dimensional scales or PNG pictures on live image (digital graticule)	•	•	•	•
Compare live to still or still to still images	•	•	•	•
Automatic and manual focus stacking (dept of field extender)				•
Time lapse video capture and recording		•		•
Time interval Overlay Assisted Inspection (OAI)		•		•
Automatic alignment of overlaid image to live image		•		•
Automatic rescaling of overlaid image through lens zoom		•		•
DXF editor with optical edge detection. Create, import, edit, export or overlay		•		•

# Highlights

## DEVELOPED FOR PRODUCTIVITY

- State of the art 4K60 camera technology
- 60 frame per second video with almost zero latency
- Highly sensitive image sensor with wide dynamic range
- Superior lens design with motorised zoom and fast auto focus
- 25x optical zoom and 2x extra digital zoom with 3D noise reduction
- Modular system fully adaptable to different applications and environments
- Single cable design for clean installation
- Industrial design robust, long lasting all-aluminium housing
- Small form factor not obscuring the operator view or occupy the worktable
- Fully compatible with a wide range of Inspectis accessories.
- Icon based INSPECTIS software with powerful video processing engine



*"Optimised for accurate inspection of Medical Devices"*

# Configurations & Accessories

## HD-116, Inspectis U50s Modular 4K60 Digital Inspection Microscope

Modular digital microscope with single-cable design, motorised x50 zoom, fast auto-focus, on-board controls and wide range of accessories including SDK for system integration

### Included items:

- Inspectis U50s, ultra HD 2160p 60fps Modular Digital Microscope, 50x Zoom
- Power Supply
- Power cord
- 2 years new product warranty



## HD-116-KIT-ADV, Inspectis U50s Advanced 4K60 Inspection System

Complete system package including best-on-the-market 4k60 Digital Microscope with ring light, track stand, xy-floating stage and INSPECTIS® Pro measurement and utility software for accurate optical inspection, capture, analysis, metrology, reporting and documentation

### Included items:

- Inspectis U50s, Ultra HD 2160p 60fps Modular Digital Macroscope, 50x Zoom
- Track stand, Large Base with focusing WD 35-410mm, ESD-Protected base
- XY Floating Board with magnetic pegs (4x kit)
- RingLight White LED with detachable diffuser
- 4K USB3.2 Gen 2x2 Capture Pro with INSPECTIS® Pro software and USB-COM cable
- Annual Service and Support for INSPECTIS® Pro (one year)



Monitor and keyboard are illustrative and not included

### Extra Accessories



HD-037-A, Macro lens +2 diopter, 67mm  
HD-038, Macro lens +3 diopter, 67mm  
HD-039, Macro lens +5 diopter, 67mm  
HD-123, Macro lens +10 diopter, 67mm  
HD-142, High Magnification lens +28 diopter  
HD-143, High Magnification lens +56 diopter



HD-041, Inspectis 360 degrees Rotating Viewer



INSPECTIS® ProX  
HD-044-60-PX, NSPECTIS® ProX software with 4K USB3.2 Gen 2x2 Capture Pro



HD-051, USB Foot switch 1-pedal  
HD-052, USB Foot switch 3-pedals



HD-140-U60, 4K60 External Digital Image Capture and Video Recorder for U-microscopes



HD-124, RingLight White LED Segment Control  
HD-124-WUV, Dual White & UV RingLight with Dimmer and Segment Control



HD-24-P-U, Polarisation filter set for Ring Light  
HD-124-D, Diffuser filter for RingLight



HD-127, Backlight, brightfield transmitted with intensity control



HD-126, Double-Spot LED matrix light with gooseneck



HD-028, XY Floating Board  
HD-028-L, XY Floating Board with Position Lock



HD-184, Precision XY stage 50x50mm with micrometer drives



HD-104, 27"-28" 4K LED monitor

*"Designed according to Industry Standards"*

# Configurations & Accessories

## HD-116-KIT-XM, U50s 4K60 Inspection System with precision X-Stage

System package including 4k60 Digital Microscope with ring light, course/fine focusing stable stand, precision X-stage and advanced control unit for high magnification optical inspection of precision parts

### Included items:

- Inspectis U50s, Ultra HD 2160p 60fps Modular Digital Microscope, 50x Zoom
- Inspectis Slider-plate stand, 90 degrees view Angle with Coarse/Fine Focusing and Precision X-stroke Slider
- Inspectis Remote Camera Control with Advanced Adjustments
- Inspectis RingLight White LED with detachable diffuser



Monitor is illustrative and not included

## HD-116-KIT-LWD, U50s 4K60 Long Working Distance

4k60 digital microscope systems package with 500mm working distance, pre-configured with ring light, advanced remote control unit and antistatic LWD stand for clear and clutter free working on objects that you can observe on the monitor right on front of you.

### Included items:

- Inspectis U50s, Ultra HD 2160p 60fps Modular Digital Macroscope, 50x Zoom
- Inspectis Single-arm Boom Stand, LWD, ESD-Protected
- Inspectis Remote Camera Control with Advanced Adjustments and LP control
- Inspectis RingLight White LED with detachable diffuser

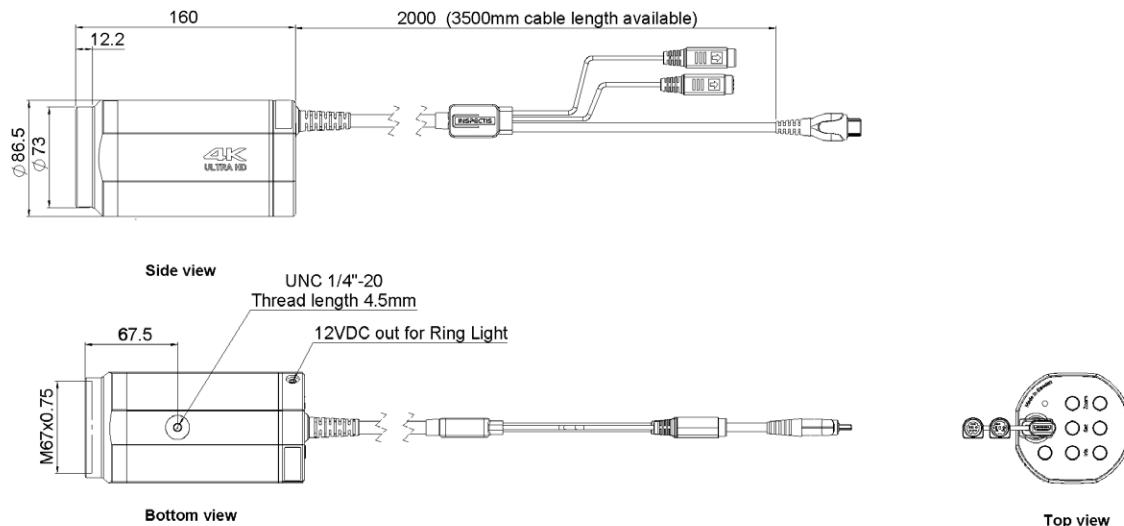


Monitor is illustrative and not included

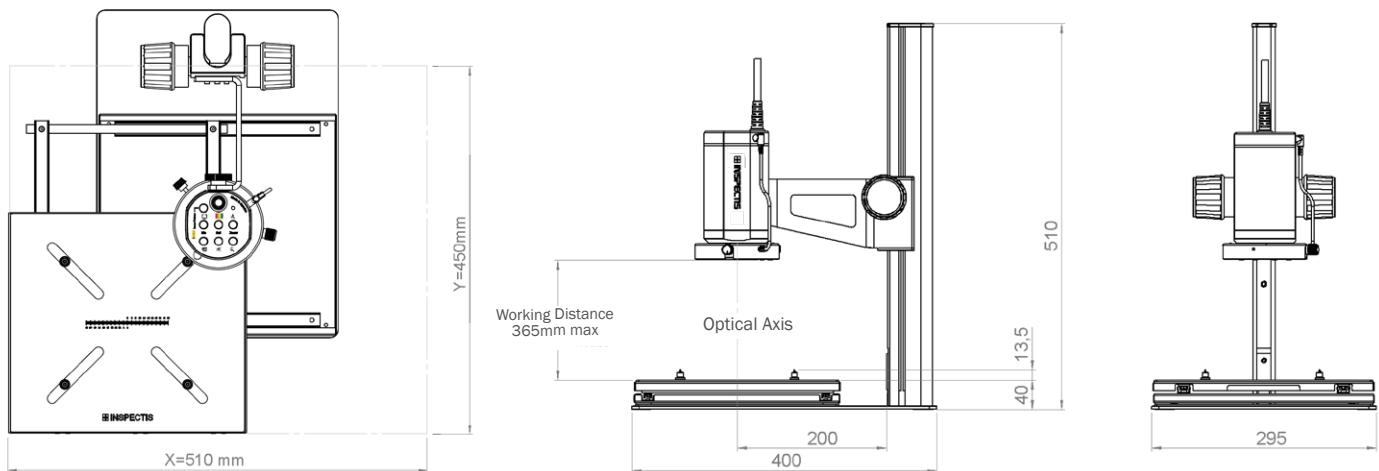


# Mechanical Dimensions

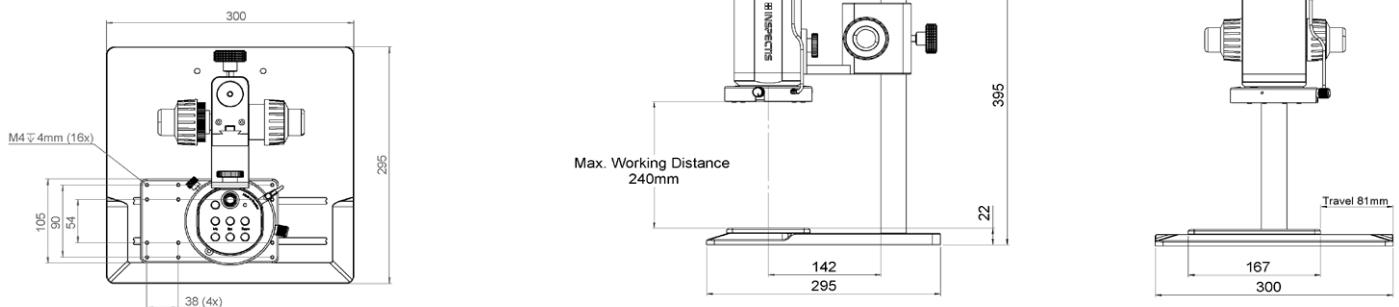
HD-116



HD-116-KIT-ADV



HD-116-KIT-XM



Dimensions in mm

# SPECIFICATIONS

## Digital Camera System:

Parameter	Value
Video Output	4K 2160p, 60 frames per second, 8.4Mp
Optical System	25:1 motorised zoom with auto-focus and auto-brightness intensity control, F1.6 - 4.8
Digital Zoom	2x digital zoom with 3D noise reduction
Magnification (on 28" monitor)	2.9x to 151x with standard lens. Up to 1730x with +56 diopter lens
Field of View	210mm at 1x zoom, 4mm at 50x zoom, 0.35mm at 50x with +56 diopter lens
Working Distance	225mm with standard lens. 18mm with +56 diopter lens
I/O Ports	HDMI2.0 video output, 5P MiniDin power input, 8P MiniDin for communication
On-board Controls	Zoom, Auto-brightness level, Manual/Auto Focus, White Balance
External Remote Controls	Zoom, Iris, Manual/Auto Brightness, Manual/Auto Focus, White Balance, Clarity filter, Contrast, Picture Quality Mode, Display Text, Crosshairs overlay, Image Rotate, Image Freeze, Memory Save/Recall (2 pcs), Laser-pointer, Foot-switch.
Illumination	White LED Ringlight, Single-spot and Double-spot LED with gooseneck, Bright-field white back light
Storage / Operating Environment	-20 ° - +60 °C, 20 - 95% RH, non-condensing / -5 ° - +40 °C, 20 - 95% RH, non-condensing
Size, Weight	Ø 86.5 x 160mm exclusive cable. 0.88 kg. excluding cable and stand

## Ordering numbers Inspection systems packages:

Item name	Order No.
Inspectis U50s, Ultra HD 60fps Modular Digital Microscope, x50 Zoom	HD-116
Inspectis U50s Advanced Inspection 4K60 System with INSPECTIS© Pro Utility and Metrology Software	HD-116-KIT ADV
Inspectis U50s Long Working Distance 4K60 System, with LWD Stand, Advanced Controller and Ring light	HD-116-KIT-LWD
Inspectis U50s Inspection System 4K60 with precision X-Stage, Advanced Controller and Ring light	HD-116-KIT-XM
Inspectis U50s Inspection System 4K60 CAP with Stand, RingLight, Image/Video Capture and monitor	HD-116-KIT-CAP
Inspectis U50s Inspection System 4K60 SOFT, with Stand, RingLight, and INSPECTIS© Basics software	HD-116-KIT-SOFT
Upgrade with 3m Extended Cable	* -EC
Upgrade with ESD-protected Housing	* -E
Upgrade with LP	* -L
Upgrade with Hermetic Sealed Housing	* -S
Upgrade with Advanced Iris Controlled Auto Brightness	* -A



Reseller