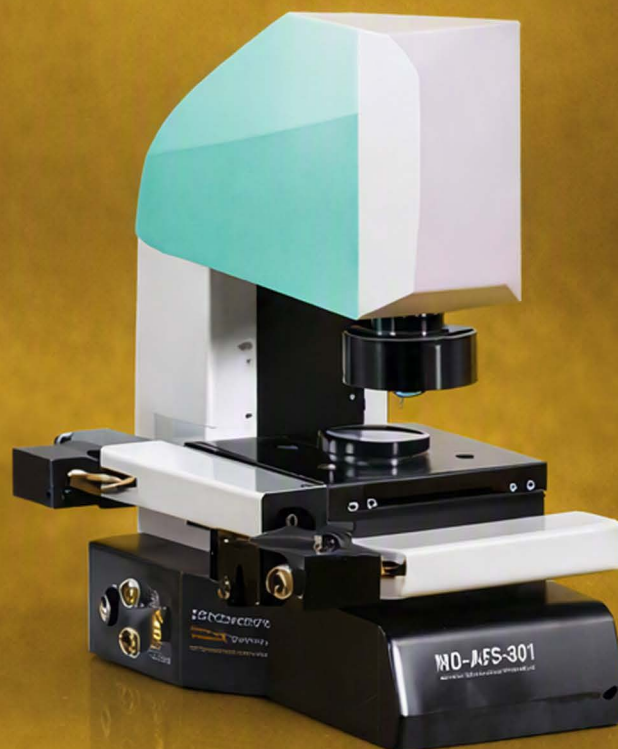
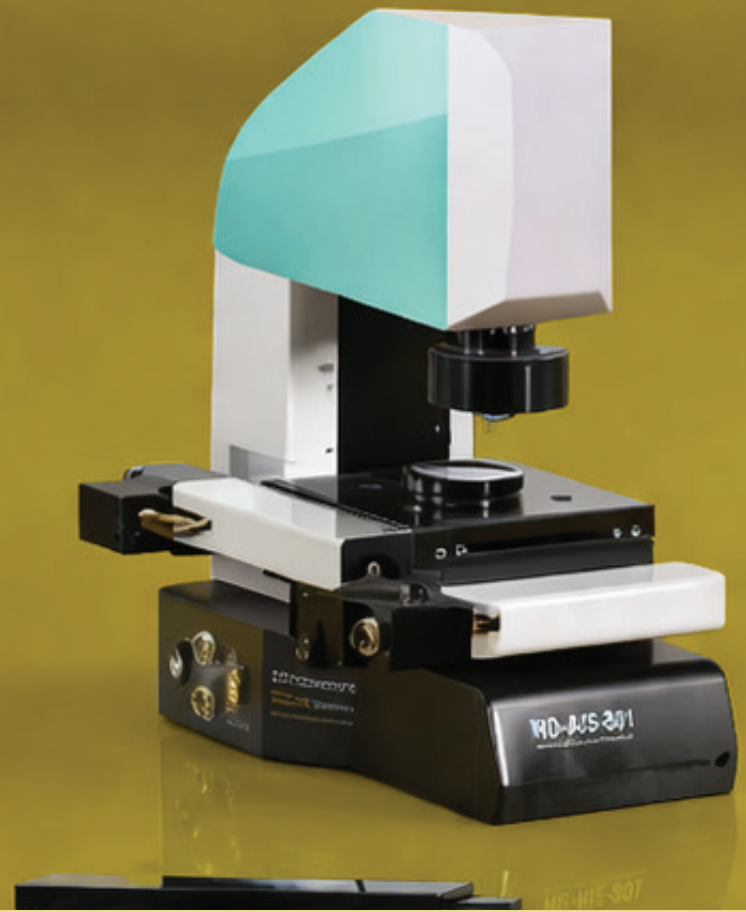
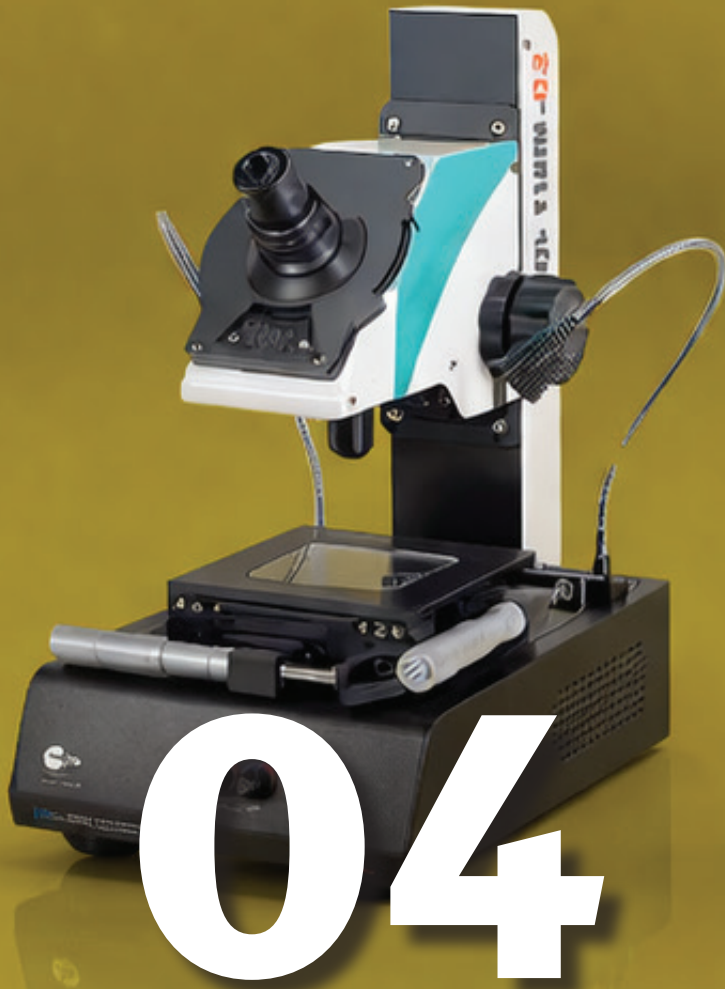


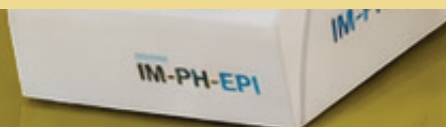


METROLOGY INSTRUMENTS

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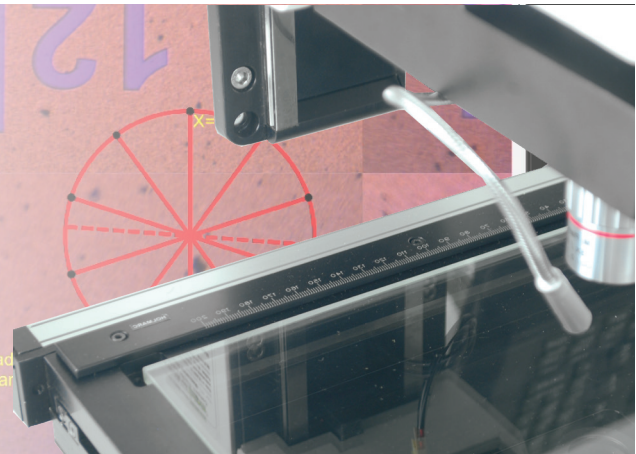
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Measuring Microscopes

- **Machines and formed components**
- **Semiconductors**
- **Electrical and electronics parts**
- **Precision automobile components**



Auto Measuring Microscope (Dual Camera)

Model : HO-AMS-DE01

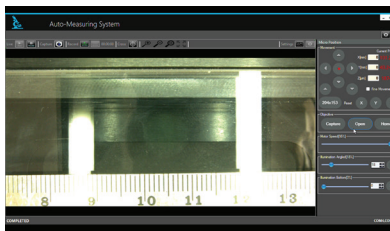
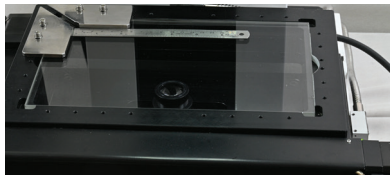
HO-AMS-DE01 measuring system is equipped with a dual imaging system for fast and precise measurements. The imaging system 1 is equipped with a low magnification lens for wide area imaging and Imaging system 2 is equipped with a long working distance microscope objective for high magnification images. A 200mm*100mm sample area can be captured with imaging system 1 in just one frame. The high precision motorized XY stage is fitted with linear encoders and DRO will be used to display the encoder feedback. Motorized Z focusing stage is provided for sample focusing. In addition to the dual camera system, a binocular observation is also provided for visual inspection and manual measurement of the samples. A joystick console is provided for positioning the stages for manual measurement.

For measurements, load the sample and capture an image using Imaging system 1. From this image, click the starting point of measurement. The sample stage will move to the starting point automatically. Focus the sample using the imaging system 2. Align the starting point with the reference cross line on the software window. The alignment can be done using the joystick console or the arrow keys on the software window. XY co-ordinates of the starting point will be saved automatically from the DRO. Then click the end point of measurement from the image captured by imaging system 1 and align it with the reference cross line using the imaging system 2. The distance and angle between these two points will be displayed on the software. The measured data can be saved a pdf for later use..



Model : HO-AMS-DE01

Specifications	Measuring accuracy	$(2 + 0.02L) \mu\text{m}$. L is the measuring length in mm
	Reading resolution	1 μm (Linear encoder with DRO)
	Observation head	Siedentopf Trinocular head, 30-degree inclination, 45-75 IP
	Observation method	Brightfield (Dual imaging system)
	Eyepiece	10X wide field, FN 20, Dioptre adjustable
	Illuminations	1. Vertical reflected LED illumination (Epi-scope), Intensity adjustable 2. Angled LED illumination, Intensity adjustable 3. Bottom LED Illumination LED adjustable
Imaging system 1	Imaging lens	8 mm prime lens
	Working distance	160 mm
	Effective magnification	0.03 X
	FOV camera	200 mm * 100 mm
	Camera	1/2 " CMOS Color 3MP
Imaging system 2	Imaging lens	LWD Plan Apo 5X Microscope Objective
	Working distance	44 mm
	Effective magnification (@5X objective)	50X @ eyepiece, 5X @ camera
	FOV eyepiece	4 mm
	FOV camera	1.31 mm * 0.984 mm
	Camera	1/2 " CMOS Color 3MP
Sample stage	Motorized XY high precision stage	
	Measuring range	200 mm x 100 mm
	Encoder resolution	1 μm
	Display	DRO
	Focusing	Motorized Z stage with autofocus
	Software	Auto measuring system
Optional Accessories	Software features	Automatic operation, Automatic measurement, Reports, DXF comparison etc.
	1. LWD Plan Apo 10X microscope objective	
	NA	0.30
	Working distance	34 mm
	FOV eyepiece	2 mm
	FOV camera	0.655 mm x 0.492 mm
	2. LWD Plan Apo 20X microscope objective	
	NA	0.35
	Working distance	29 mm
	FOV eyepiece	1 mm
	FOV camera	0.327 mm x 0.214 mm
	3. LWD Plan Apo 50X microscope objective	
	NA	0.45
	Working distance	17 mm
	FOV eyepiece	0.4 mm
	FOV camera	0.131 mm x 0.0984 mm



Measuring Microscope (Trinocular)

Model : MM214V & MM214D Series

MM214 is a new series of innovative measuring microscopes from Holmarc designed for industrial and scientific measurements. These microscope are designed for delivering maximum measuring accuracy. It can be used for measurements as well as inspection of miniature parts and specimens which are too small to be measured without the assistance of a microscope. The instrument can measure semiconductors, small electronic and electrical components, biological specimens, micro-electro mechanical systems (MEMs), miniature machined parts, miniature molded items etc. The microscope has long working distance objective, eye piece fitted with reference cross wire, precision XY measuring stage, optical linear scales fitted to the X,Y and Z stages, digital read out (DRO) and object illumination systems. This instrument can be considered to be an essential tool for any laboratory either life science or physical science handling miniature components, parts and specimens

Specifications	Measuring Accuracy	(2+0.02L) μm. L is the measuring length in mm
Model : HO-MM214V-50X	Effective Magnification	50 X (up to 500 X Available)
	Vision	Binocular
	Working Distance	44 mm
	Working Throat	100 mm
	Objective Design	PLAN APO Infinity LW Objective
	Stage	XYZ High Precision Stage
	Travel (X, Y & Z)	100 x 200 x 100 mm
	DRO	XYZ coordinate data
	Resolution (DRO)	0.00005” / 0.001 mm
	Z Axis Single Channel DRO	0.001mm resolution
Illumination	Variable High Bright LED Angled, Bottom & Coaxial Illumination	
Model : HO-MM214D-50X*	Trinocular Model	C-Mount camera adapter is available in this model All other specifications are same as that of Model : MM214V

Applications

- Machines and formed components
- Semiconductors
- Electrical and electronics parts
- Precision automobile components
- Plastic moldings
- Tools
- Medical devices



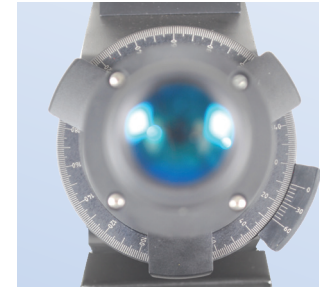
Measuring Microscope (Monocular)

Model : TM215VM

Holmarc's MM215VM is an affordable measuring microscope in MM215V Series are well suited for wide range of applications from shop-floor inspection, measurement of tools and machined parts to precise measurement of test tools in a measuring room. It is designed as a monocular optical system with an angular measurement dial, suited for measuring angles. Angle measurement is performed easily by turning the angle scale disc to align the cross-hair reticle with the workpiece image. Designed for those who prefer to measure with their own eye, the monocular eyepiece tube model is available. The C-Mount Video Head model provides easy video monitoring.

Bottom, Angled and co-axial illumination are provided in TM215V Series. A high bright White LED is employed as the co-axial light source. Illumination intensity can be adjusted for most convenient and suitable illumination

The eye piece of this microscope is fitted with cross wire and measuring scale. The cross wire acts as a reference point for taking fine measurements. The XYZ stage used is of measurement grade fitted linear encoders and a 3-channel DRO. Measurements are taken by the movement of the stage. The crosswire is aligned with the first reference line or a point on the specimen or test object. Then the stage is moved watching the image to the second point on the object. Actual measurements will be displayed on the DRO. The depth can also be measured precisely using the Z stage on which the optics head is fixed. By lowering or raising optics head, a point can be made in to focus or out of focus. By bringing the two points at different depths into focus one by one by moving the Z- stage, the depth can be obtained from the DRO readings. The quick-release system is enabled on all long XY measuring stage, which is especially useful in longstroke measurements. Large-size grip knobs are provided on both sides of the column for focusing using the fine / coarse movement.



Applications

- Small Size Die & Mold
- Drill Bits
- Inserts
- Fine Pitch Connector
- Gears etc.

Specifications



Model : HO-TM215VM-50X*

Measuring Accuracy	(2+0.02L) L is the measuring length in mm
Effective Magnification	50 X (up to 500 X Available)
Vision	Monocular
Working Distance	44 mm
Working Throat	100 mm
Objective Design	PLAN APO Infinity LW Objective
Angular Measurement Unit	0.1 Degree Scale
Stage	XY High Precision Stage
Travel (X, Y,Z)	200x100x100 mm
XY Measurement Resolution	0.00005" / 0.001 mm
Illumination	Variable High Bright LED Angled, Bottom & Coaxial Illumination

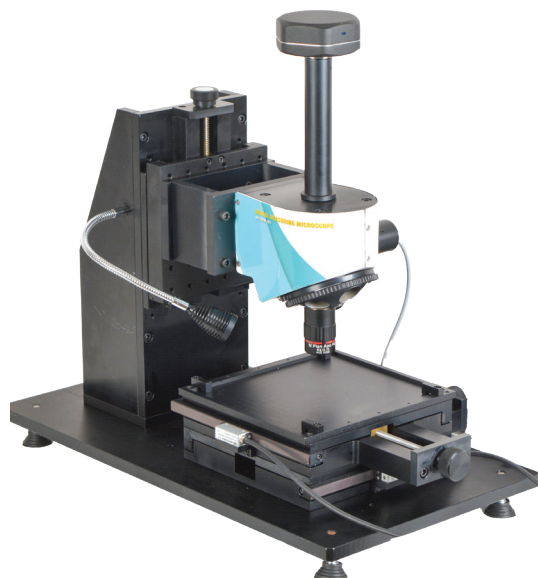
Optional Magnifications

1. 100X [Working Distance = 34 mm]
2. 200X [Working Distance = 29 mm]
3. 500X [Working Distance = 17mm]



Digital Measuring Microscope

Model : HO-DMM-M1



Model : HO-DMM-M1

Microscope type	Upright digital
Optical system	Infinity corrected
Observation method	Brightfield
Illuminations	Transmitted Illumination. Reflected - Co-axial and Angled
Illumination systems	High bright White LED, 3W, Intensity adjustable
Nosepiece	Quadruple, Manually rotatable
Viewing head	Digital camera Plan Apo Long working distance Magnification = 5X
Microscope Objective	NA = 0.15, Working distance = 44 mm FOV = 1.14 mm x 0.856 mm Optical resolution = 2.3 micron
Z Focusing	Manual focusing stage
Sample XY Stage	Precision manual XY Stage with linear encoder Travel = 150mm x 150mm Drive = manual
Linear encoder	Resolution = 1 microns (XY stages) Control electronics for encoder feedback Encoder feedback can be readout from the camera software
Software features	Live/Capture Image, measurement feedback (encoder feedback)
Power Input	230V, 50Hz

Digital Camera Details

Sensor	1/2.5" 5MP Color CMOS
Sensor size	5.7 mm x 4.28 mm
Resolution	2592 x 1944 Pixels (5MP)
FPS	10 fps @ 2592 x 1944 pixels
Pixel size	2.2 um x 2.2 um
Shutter type	Electronics rolling shutter
Exposure time	109 us to 3000ms
Output image format	8bit / 12bit RAW
Photo image format	JPEG / BMP / PNG / RAW
Sensitivity	1.76 V / Lux - sec
SNR	38.5 dB
Dynamic range	67.7 dB
Interface	USB 2.0
Lens mount	C-Mount

Auto Digital Microscope

Cleanliness Analysis

Model No. HO-AIS-B01

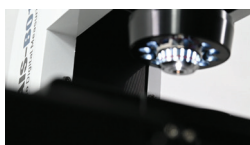
HO-AIS-B01 is an automated digital microscope designed for cleanliness analysis in several industrial domains. The system is equipped with a 5X microscope objective and a 3MP CMOS color camera for high-resolution image capture. A high bright intensity adjustable ring LED is included for uniform top illumination of the imaging area. LED bottom illumination is also provided for imaging transparent and semi-transparent samples. A highly precise motorized XY stage is provided for the automated sample scanning and a motorized Z focusing stage with an autofocus algorithm allows the user to get the best focused image in each frame.

A user-friendly software, Particle Analyser Pro, is included with the system for the automated scanning, stitching, and analysis operations. The software can easily classify the measured particles into different cleanliness classes as per the standards and reports can be generated in pdf formats. Custom reporting formats are also available.

Standards : ISO 16232, ISO - 4406 : 2021, ISO 13322, VDA 19.1

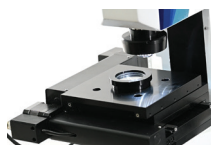
Specifications

Model	HO-AIS-B01
Optical system	Infinity corrected
Observation method	digital Brightfield
Top illumination	High bright White Ring LED, Intensity adjustable via software
Transmitted illumination	High bright White LED, Intensity adjustable via software
Microscope objective	Plan Achromatic 5X objective (manually replaceable)
Focusing	Motorized with Autofocusing
Sample stage	High precision motorized XY stage, 50mm x 50mm travel
Camera	3MP CMOS 1/2" Color
Software	Particle Analyser_Pro
Software features	Scanning, stitching, measurements, particle counting, analysis, Reports,



High Bright LED

High bright White Ring LED, Intensity adjustable via software

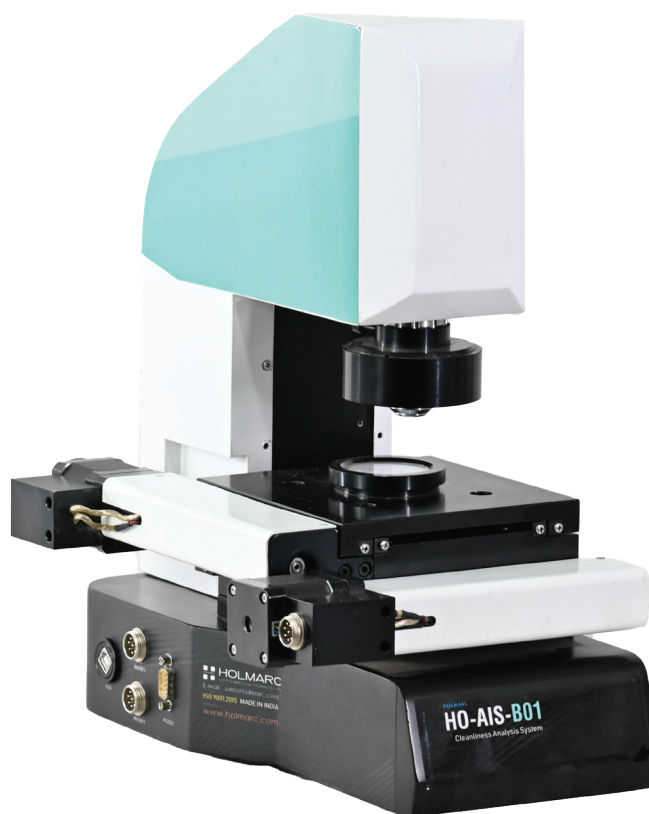


Automatic scanning and stitching

Autofocusing

Documentation

- **Aerospace industry**
Cleanliness analysis of lubricating or hydraulic fluids and oils
- **Automotive industry**
Cleanliness analysis of components and parts
- **Medical industry**
Contamination of implants, syringes and medical instruments
- **Electronics industry**
Inspection, cleanliness analysis, cross section analysis
- **Textile industry**
Qualitative and quantitative analysis of fibre
- **Biological / health care**
Full slide scanning (Slide scanner), stitching, documentation
- **Optical industries**
Component inspection
- **Material analysis**



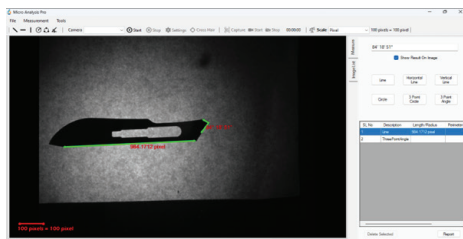
Auto Digital Measuring Microscope

Model : HO-AIS-B01-M

HO-AIS-B01-M is an automated digital measuring microscope designed for small measuring application up to 50mm. The system is equipped with a low microscope objective and a 3MP CMOS color camera for high resolution image capture. A high bright intensity adjustable ring LED is included for uniform top illumination of the imaging area. LED bottom illumination is also provided for measurement from the edge profile. A precision motorized XY stage is provided for the automated sample scanning and a motorized Z focusing stage with an autofocus algorithm allows the user to get the best focused image in each frame.

A user-friendly software, Micro Analysis Pro is included with the system for the automated scanning, stitching, and measuring applications. The software provides live measurement and dxf comparison features. Auto measurement feature helps to measure the common dimensions of the live image by a single click. The measurement reports with the component image can be exported to pdf formats. Custom reporting formats are also available.

- **Live measurement**
- **DXF comparison**
- **Auto-measurement**
- **Manual measurement**
- **Automatic Scanning & Stitching**
- **Reports**



Software

Scanning, stitching, measurements,
Compliance statement, Histograms, reports

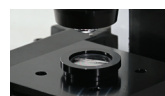
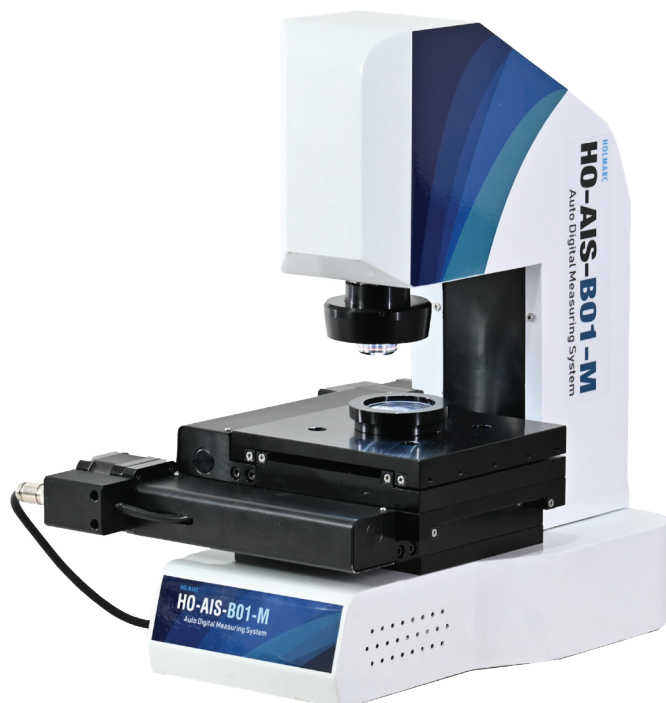
Specifications



Model

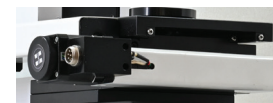
HO-AIS-B01-M

Optical system	Infinity corrected
Observation method	digital Brightfield
Top illumination	High bright White Ring LED, Intensity adjustable via software
Transmitted illumination	High bright White LED, Intensity adjustable via software
Microscope objective	Plan Achromatic 5X objective (manually replaceable)
Focusing	Motorized with Autofocusing
Sample stage	High precision motorized XY stage, 50mm x 50mm travel
Camera	3MP CMOS 1/2" Color
Software	Micro Analysis_Pro
Software features	Live measurement, DXF comparison, Auto-measurement, scanning, stitching, reports.
Standards	ISO 3310-1 : 2016



Obsevation

Infinity corrected
digital Brightfield



Motorized Stage

High precision motorized XY
stage, 50mm x 50mm travel

Digital Microscope - Sieve Analysis

Model : HO-AIS-B01-S

HO-AIS-B01-S is an automated digital microscope designed for Sieve / Mesh analysis. The system is equipped with a 5X microscope objective and a 3MP CMOS color camera for high-resolution image capture. A high bright intensity adjustable ring LED is included for uniform top illumination of the imaging area. LED bottom illumination is also provided for imaging the sieve patterns. A precision motorized XY stage is provided for the automated sample scanning and a motorized Z focusing stage with an autofocus algorithm allows the user to get the best focused image in each frame.

A user-friendly software, Sieve Analysis Pro is included with the system for the automated scanning, stitching, and analysis of Sieves / Mesh. The software uses edge detection algorithm to measure the aperture size, and wire diameter. The sieve inspection reports can be exported to pdf formats and compliance or non-compliance with ISO 3310 standard will be mentioned along with histograms. Custom reporting formats are also available.

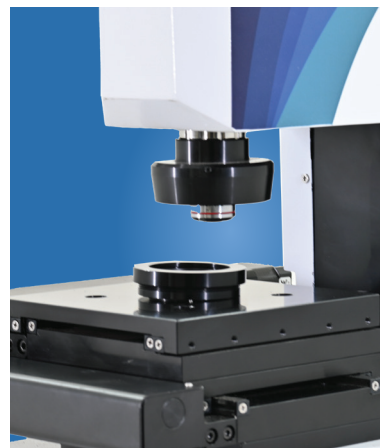
Standards : ISO 3310-1 : 2016

Specifications



Model	HO-AIS-B01-M
Optical system	Infinity corrected
Observation method	Digital Brightfield
Top illumination	High bright White Ring LED, Intensity adjustable via software
Transmitted illumination	High bright White LED, Intensity adjustable via software
Microscope objective	Plan Achromatic 5X objective (manually replaceable)
Focusing	Motorized with Autofocusing
Sample stage	High precision motorized XY stage, 50mm x 50mm travel
Camera	3MP CMOS 1/2" Color
Software	Sieve Analysis_Pro
Software features	Scanning, stitching, Measurements, Compliance statement, Histograms, Reports.

- Automatic Scanning & Stitching
- Autofocusing
- Reports as per ISO 3310-1 : 2016 Standards



Textile industry

Qualitative and quantitative analysis of fibre



Metallurgy Microscope Trinocular with Camera

Model HO-MM-T01

HO-MM-T01 is an upright manual metallurgy microscope designed for material analysis and inspection applications. A high bright white LED is included for the co-axial illumination of opaque samples and a white LED transmitted illumination is provided for imaging transparent and semi-transparent samples. In addition to the binocular observation, a 5MP color camera is also included for capturing the high quality images. An analysis software, Industry Pro, is provided with the system for quantitative analysis of Grain size, Inclusion, Porosity, Cementite, Phase Segmentation, and Nodularity (Ductile Iron, Gray cast Iron). Heyns lineal intersection method, three circle method, Heyns Abrams Intersection method, Random line method etc are used for the grain size measurement. Every measurement and report is generated in compliance with international standards. Custom reporting formats are also available



Model	Model : HO-MM-T01	
		
Specifications	Microscope type	Upright
	Optical system	Infinity corrected
	Observation methods	Brightfield
	Transmitted illumination	3W white LED – Intensity adjustable
	Epi-scope (Co-axial) illumination	3W white LED – Intensity adjustable
	Nosepiece	Quadruple, Manually rotatable
	Viewing head	Sidentopf Trinocular head, 30o inclination, 48-75mm IP
	Eyepieces	10X Wide field (FN20), diopter adjustable
Microscope Objectives	Plan Achromatic 10X	NA = 0.25, WD = 20.2mm FOV _{eyepiece} = 2mm, FOV _{camera} = 0.57mm*0.428mm
	Plan Achromatic 20X	NA = 0.40, WD = 8.8mm FOV _{eyepiece} = 1mm, FOV _{camera} = 0.285mm*0.214mm
	Plan Achromatic 40X	NA = 0.60, WD = 3.98mm FOV _{eyepiece} = 0.5mm, FOV _{camera} = 0.1425mm*0.107mm
	Plan Achromatic 100X	NA = 0.85, WD = 0.40mm FOV _{eyepiece} = 0.2mm, FOV _{camera} = 0.057mm*0.0428mm
	Total Magnification	100X-1000X @ eyepiece and 10X-100X @ Camera
	Z focusing	Co-axial coarse and fine focusing, Manual
Sample XY stage	Double layer Mechanical stage	Manual
	Travel	75mm x 50mm
	Drive	Drop down knob (lead screw)
	Drop down knob	
	Substage condenser	Abbe condenser with Adjustable Iris, Focus adjustable
	Camera	1/2.5" CMOS Color 5MP, C-Mount, USB 2.0
	Software	Industry_Pro (Metallurgy analysis software)
	Software Features	Metallurgy analysis, Measurements - distance, angle, diameter, counting
Standards	Porosity	ASTM B-276
	Cementite	ASTM E 1268
	Inclusion	IS 4163:2021
	Nodularity (Ductile Iron)	ISO 947-1, IS 7754:1975, JIS G5503, GOST 3443-87
	Nodularity (Gray Cast Iron)	ASTM 247-17, ISO 945-1
	Grain Size	ASTM E-112, ASTM E-1382-91, IS 4748:2021, ISO 643:2019
	Software	Industry_Pro (Metallurgy analysis software)
Applications	Metallography	Semiconductor
	Mineralogy	Inspection of metals
	Gemology	Solar cells
	Forensic metallurgy	

Metallurgy Microscope - Motorized

Transmitted and Epi-scopic Illumination

Model No HO-AMM-B01

HO-B01-B01 is an upright metallurgical microscope equipped with motorized XYZ stages for the automated operation of material analysis. The precision motorized XY stage can be used for the automated sample scanning while motorized Z focusing stage will keep the sample frame in focus with help of autofocus algorithm. A high bright white LED is included for the co-axial illumination of opaque samples and a white LED transmitted illumination is provided for imaging transparent and semitransparent samples.

An analysis software, Industry Pro, is provided with the system for quantitative analysis of Grain size, Inclusion, Porosity, Cementite, Phase Segmentation, and Nodularity (Ductile Iron, Gray cast Iron). Heyns lineal intersection method, three circle method, Heyns Abrams Intersection method, Random line method etc are used for the grain size measurement. Every measurement and report is generated in compliance with international standards. Custom reporting formats are also available



Features

1. Automatic scanning and stitching
2. Autofocusing
3. 75mm x 75mm motorized sample stage



Model	HO-AMM-b01	
		
Specifications	Microscope type	Upright
	Optical system	Infinity corrected
	Observation methods	Brightfield & simple polarizing
	Transmitted illumination	3W white LED – Intensity adjustable
	Epi-scope (Co-axial) illumination	3W white LED – Intensity adjustable
	Nosepiece	Quadruple, Manually rotatable
	Viewing head	Sidentopf Trinocular head, 30o inclination, 48-75mm IP
	Eyepieces	10X Wide field (FN20), diopter adjustable
	Z focusing	Motorized stage with Autofocusing
	Sample Stage	Motorized XY high precision stage
		XY travel = 75 mm x 75 mm
	Substage condenser	Abbe condenser with Adjustable Iris, Focus adjustable
	Camera	1/2.5" CMOS Color 5MP, C-mount, USB 2.0
	Polarizing attachment	Polarizer - fixed, Analyser - rotatable
	Software	Industry_Pro (Metallurgy analysis software)
Microscope Objectives	Plan Achromatic 10X	NA = 0.25, WD = 20.2mm FOVeyepiece = 2mm, FOVcamera = 0.57mm*0.428mm
	Plan Achromatic 20X	NA = 0.40, WD = 8.8mm FOVeyepiece = 1mm, FOVcamera = 0.285mm*0.214mm
	Plan Achromatic 40X	NA = 0.60, WD = 3.98mm FOVeyepiece = 0.5mm, FOVcamera = 0.1425mm*0.107mm
	Plan Achromatic 100X	NA = 0.85, WD = 0.40mm 0.2mm, FOVcamera = 0.057mm*0.0428mm
	Total Magnification	100X-1000X @ eyepiece and 10X-100X @ Camera.
Standards	Porosity	ASTM B-276
	Cementite	ASTM E 1268
	Inclusion	IS 4163:2021
	Nodularity (Ductile Iron)	ISO 947-1, IS 7754:1975, JIS G5503, GOST 3443-87
	Nodularity (Gray Cast Iron)	ASTM 247-17, ISO 945-1
	Grain Size	ASTM E-112, ASTM E-1382-91, IS 4748:2021, ISO 643:2019

Inverted Metallurgy Microscope

Model No HO-IMM-T01

Microscope HO-IMM-T01 is an Inverted Metallurgy Microscope designed for material analysis and inspection applications. A white LED with adjustable intensity is provided for the reflected illumination. The binocular head is inclined at 45 degrees and both the eyepieces are dioptre adjustable. In addition to the binocular observation, a 5MP color camera is also included for capturing the high quality images. The smooth operating, ball bearing mounted, quadruple nosepiece provides effortless objective changes. A mechanical stage with co-axial drop down knob is provided as the sample stage. A tension adjustable coaxial coarse and fine mechanism is used for the sample focusing. An analysis software, Industry Pro, is provided with the system for quantitative analysis of Grain size, Inclusion, Porosity, Cementite, Phase Segmentation, and Nodularity (Ductile Iron, Gray cast Iron). Heyns lineal intersection method, three circle method, Heyns Abrams Intersection method, Random line method etc are used for the grain size measurement. Every measurement and report is generated in compliance with international standards. Custom reporting formats are also available.

Automatic scanning and stitching

Autofocusing

75mm x 75mm motorized sample stage



Model : HO-IMM-T01**Specifications**

Microscope type	Inverted
Optical system	Infinity corrected
Observation methods	Brightfield
Epi-scope (Co-axial) illumination	3W White LED, Adjustable Intensity
Nosepiece	
Viewing head	Sidentopf Binocular head, 45°, 55-75mm IP
Eyepieces	WF10X, FN20, Dioptic adjustment – both eyepieces
Nosepiece	Quadruple revolving, positive precision click stops, Manual. RMS thread
Sample stage	Double layer Mechanical stage
Travel	126 mm x 78 mm
Focusing	Coaxial coarse and fine focusing mechanism
Camera Port	Side
Camera	1/2.5" CMOS Color 5MP, C-mount, USB 2.0
Reflected Illumination	3W white LED, Adjustable intensity
Software	Industry_Pro (Metallurgy analysis software)

Microscope Objectives

1. Plan Achromatic 10X/0.25	NA = 0.25, WD = 20.2mm FOVeyepiece = 2mm, FOVcamera = 0.57mm*0.428mm
2. Plan Achromatic 20X/0.40	NA = 0.40, WD = 8.8mm FOVeyepiece = 1mm, FOVcamera = 0.285mm*0.214mm
3. Plan Achromatic 40X/0.60	NA = 0.60, WD = 3.98mm FOVeyepiece = 0.5mm, FOVcamera = 0.1425mm*0.107mm
4. Plan Achromatic 100X/0.85 dry	WD = 0.40mm NA = 0.85, WD = 0.40mm 0.2mm, FOVcamera = 0.057mm*0.0428mm

Standards

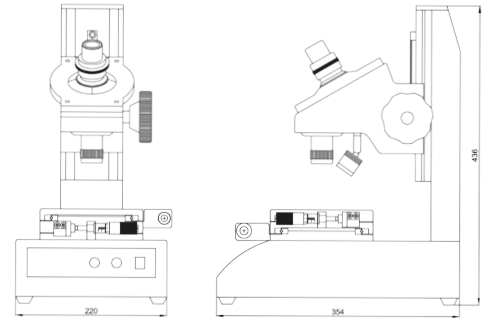
Porosity	ASTM B-276
Cementite	ASTM E 1268
Inclusion	IS 4163:2021
Nodularity (Ductile Iron)	ISO 947-1, IS 7754:1975, JIS G5503, GOST 3443-87
Nodularity (Gray Cast Iron)	ASTM 247-17, ISO 945-1
Grain Size	ASTM E-112, ASTM E-1382-91, IS 4748:2021, ISO 643:2019
Software	Industry_Pro (Metallurgy analysis software)

Tool Maker's Microscope

Model : HO-TMM Series

Holmarc's Tool Maker's microscopes are multipurpose measuring devices that are generally used for the examination and measurement of small mechanical and electrical parts or tools. These microscopes are used to view and measure linear distances, thread pitch, thread angles, tool edges, tool wear surfaces etc. and are ideal for photo-lithographic labs, nano-technology labs, and biomedical labs. These microscopes have a cross-hair reticle on the eyepiece that serves as a reference point for making measurements. The measurements are taken by moving the stages, which are equipped with precision micrometres with a resolution of 10microns (or 1 microns). The instrument uses high bright LEDs for both transmitted and flexible arm illuminations. Two objective -2X and 3X- as well as a 10X eyepiece are included with the systems. All the optical elements are coated with broadband multilayer AR for a clear and flare less images.

Holmarc offers three models of Tool maker's microscopes; HO-TMM-01, HO-TMM-02, and HO-TMM-03. A 25mm x 25mm travel XY stage is used in the HO-TMM-01 mode, where as a 50mm x 50mm travel XY stage is provided in the HO-TMM-02 model. A rotating stage is also included in the HO-TMM-03 model in addition to the XY stage that are driven by digital micrometers with 1-micron resolution.



Multipurpose measuring devices

Ideal for Research & Industrial applications

Both transmitted and reflected illumination intensities can be adjusted.

Errect image, bright field observation, clear and flare less image, wide field of view.

Long travel stages are available on request.

Angle measurement is performed easily by turning the angle scale disc to align the cross-hair reticle with the work piece image.



Specifications & Tolerances

Model	HO-TMM-01	HO-TMM-02	HO-TMM-03
			
Observation tube	Monocular, 45° Inclined, 90° Cross-hair reticle	Monocular, 45° Inclined, 90° Cross-hair reticle	Monocular, 45° Inclined, 90° Cross-hair reticle
Observation image	Errect	Errect	Errect
Eyepiece protractor	360° graduated, resolution = 6' (by Vernier)	360° graduated, resolution = 6' (by Vernier)	360° graduated, resolution = 6' (by Vernier)
Total Magnification	20 X & 30 X	20 X & 30 X	20 X & 30 X
Objectives	2 X & 3 X	2 X & 3 X	2 X & 3 X
Working distance	67 mm & 60 mm	67 mm & 60 mm	67 mm & 60 mm
Eyepiece	10 X	10 X	10 X
Sample XY stage			
Travel	25 mm x 25 mm	50 mm x 50 mm	25 mm x 25 mm
Resolution	10 microns	10 microns	1 microns
Drive	Micrometer	Micrometer	Digital Micrometer
Rotation stage			
Travel			360°
Resolution			0.1°
Illuminations			
Bottom Illumination	High bright LED, Adjustable intensity	High bright LED, Adjustable intensity	High bright LED, Adjustable intensity
Angled Illumination	2 flexible arm LED, Adjustable intensity	2 flexible arm LED, Adjustable intensity	2 flexible arm LED, Adjustable intensity
Power supply	230V, 50Hz	230V, 50Hz	230V, 50Hz
Optional Accessories			
Digital Micrometer Head	(2 Nos. required for XY stage) Travel = 25 mm, Resolution = 1 micron, (Model No. HO-TMM-DM1)		
Eyepieces	10X, FN - 13 mm, (Model No. HO-TMM-E10) 20X, FN - 10 mm (Model No. HO-TMM-E20)		
Objectives	5X, WD - 33 mm, NA: 0.10 (Model No. HO-TMM-MO5) 10X, WD - 14 mm, NA: 0.14 (Model No. HO-TMM-MO10)		

Tool Maker's Microscope Monocular with camera

Model : HO-TMM-01C

Holmarc's Tool Maker's Microscopes are multipurpose measuring instruments that are generally used for the examination and measurement of small mechanical and electrical parts or tools. HO-TMM-01C model Tool Maker's microscope is equipped with a monocular eyepiece and camera for both visual as well as digital inspection applications. The sample XY stage is equipped with digital micrometer heads for precision measurements with 1µm resolution. White LED with adjustable intensity is provided for both transmitted and flexible arm illuminations. A software with live measurement feature is provided for measurement and documentation.

These microscopes are used to view and measure linear distances, thread pitch, thread angles, tool edges, tool wear surfaces etc.

Specifications

Model	HO-TMM-01C
Observation tube	Monocular with Camera, 45° Inclined, 90° Cross-hair reticle
Observation image	Erect
Eyepiece protractor	360° graduated, resolution = 6' (by Vernier)
Total Magnification	20 X & 30 X
Working distance	67 mm & 60 mm
Eyepiece	10X, dioptr adjustable
Bottom Illumination	White LED, adjustable intensity
Angled Illumination	White LED, adjustable intensity
Focusing	Manual
Sample XY stage	
Travel	25 mm x 25 mm
Resolution	1 microns
Drive	Digital Micrometer
Optional Accessories	
20X Eyepiece	FN = 10 mm (Model No : TMM-E20)
5X Objective	NA = 0.10, WD = 25 mm (Model No : TMM-M05)
10X Objective	NA = 0.14, WD = 14 mm (Model No : TMM-M10)
Rotation stage, Coarse travel	360°, Resolution = 0.1° (Model : TMM-R0.1)



Erect image

Brightfield Observation

5MP Color CMOS Camera

Live measurement software

Protractor for angle measurement



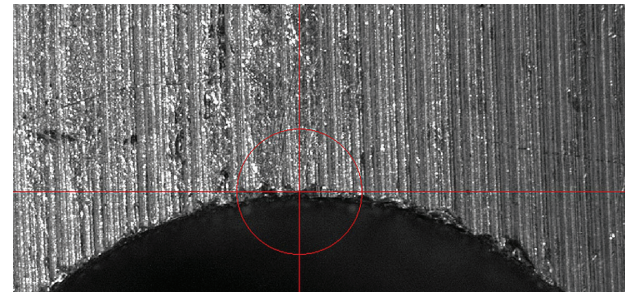
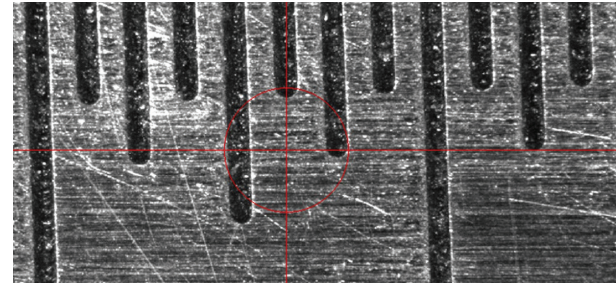
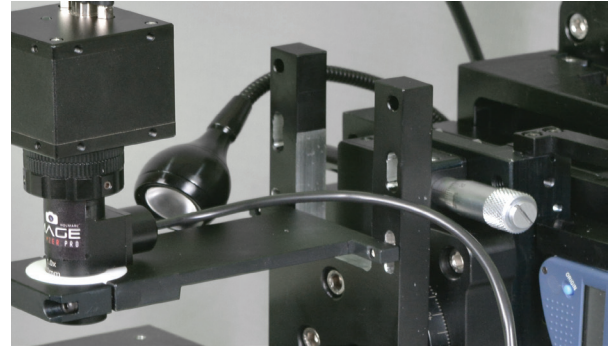
Telecentric Digital Inspection / Measuring Microscope

Model : HO-MM221V

MM221V is high precision digital inspection and measuring microscope that used a telecentric lens to measure dimensional tolerance on a variety of objective. This computer based system is well suited for a wide range of applications, including shop floor inspection, tool and machines part measurement, accurate test tool measurement etc.

MM221V model is equipped with transmitted, angled and co-axial LED illumination with intensity adjustable provision. A green LED is provided for the co-axial illumination. The system comes with a user friendly camera application for the inspection / measurement.

The high precision XY stage is fitted with digital micrometer heads for the precise measurement with 1-micron resolution. The crosswire on the camera application can be used as the reference lines for the measurement. To take the measurement, move the XY stage with respect to the image's cross wire; the digital micrometer head will provide the corresponding readings. The depth can also be measured precisely using the digital micrometer fitted on the Z focusing stage.



Specifications



Effective Magnification	1 X
Vision	Digital PC Based software measurement
Working Distance	40 mm
Working Throat	100 mm
Objective Design	Telecentric
Camera	3MP CMOS Color
Mount	C-Mount
Typical Distortion @ 588nm	0.0083 %
Typical Telecentricity @ 588nm	0.02°
Working Distance Tolerance	± 1 mm
Angular Measurement Unit	0.1 Degree Scale
Stage	XY High Precision Stage
Travel (X, Y)	25 x 25mm (Available range up to 400 x 200mm)
XY Measurement Resolution	1 Micron
Illumination	Variable High Bright LED Angled, Bottom & Coaxial Illumination



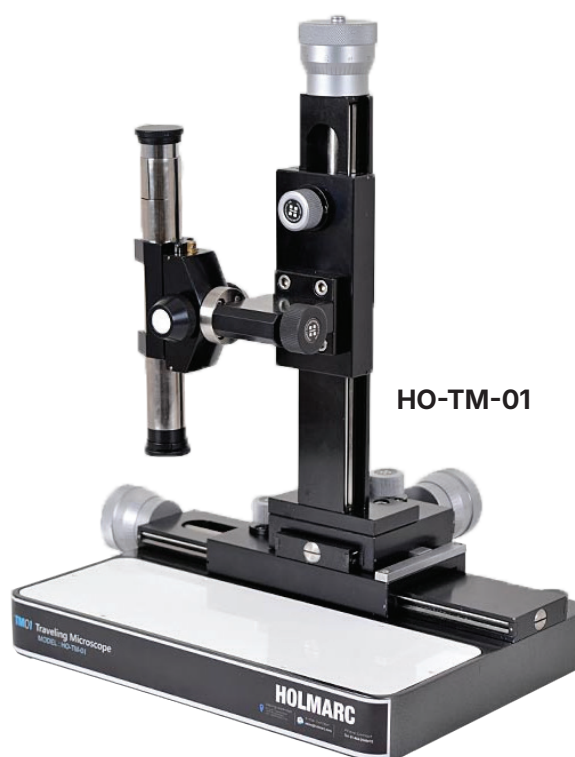
Traveling Microscope HO-TM-01

Holmarc offers traveling microscope with three axes measurement possibility; horizontal, vertical and right angled transverse motion. The instrument finds wide applications in general purpose scientific and industrial measurements. It can be used for accurate measurements of diameter of different objects. Other applications include accurate determination of small variation in the liquid levels, determination of refractive index of liquids, surface tension, viscosity etc.

Holmarc's Precision traveling microscope model HO-TM-01 is fabricated using precision roller bearing slides in each axis, where as other commercial available models are fabricated using standard dovetail design. The precision roller bearing slides give us frictionless movements which helps to perform the measurements more accurately than dovetail design. Each stage (X, Y and Z) is equipped with coarse and fine movements. Coarse movement can easily be done by moving the stage by hand and after locking the stage at a particular position the fine movement / measurement can be done by the micrometer head. The resolution of the fine movement is 10 micron. The use of micrometer head enables precise and accurate measurements unlike commonly available traveling microscopes with vernier scale readings. The microscope tube is mounted on a rotating arm which is 360 degree rotatable and lockable. A rack and pinion type focusing mechanism is attached to the microscope tube for focusing the objects. The microscope tube is fitted with 3X long working distance objective and 10X eyepiece with cross hair.

	HO-TM-01	HO-TM-02
Horizontal Movements		
X Direction	Micrometer Head	Micrometer Head
Travel	Coarse 150, mm 25 mm fine	50 mm
Resolution	10 micron	10 micron
Y direction	Micrometer Head	Micrometer Head
Travel	Coarse 50 mm, 25 mm fine	50 mm
Resolution	10 micron	10 micron
Vertical Movement		
Z Direction	Micrometer Head	Micrometer Head
Coarse Travel	130 mm	130 mm
Fine Travel	25 mm	25 mm
Resolution	10 micron	10 micron
Observation tube		
Rotation	360 degree (lockable)	360 degree (lockable)
Eyepiece		
Magnification	10 X	10 X
Focal length	25 mm	25 mm
Broadband AR coated		
Cross hair reticle		
Objective		
Achromatic Type		
Magnification	3 X	3 X
Focal Length	60 mm	60 mm
Broadband AR Coated		
Base Construction	Cast Aluminium	Cast Aluminium
Focusing	Manual, Rack & Pinion	Manual, Rack & Pinion

We can provide custom configured traveling microscopes on request. Contact us at sales@holmarc.com, mail@holmarc.com.



HO-TM-01

Traveling Microscope HO-TM-02

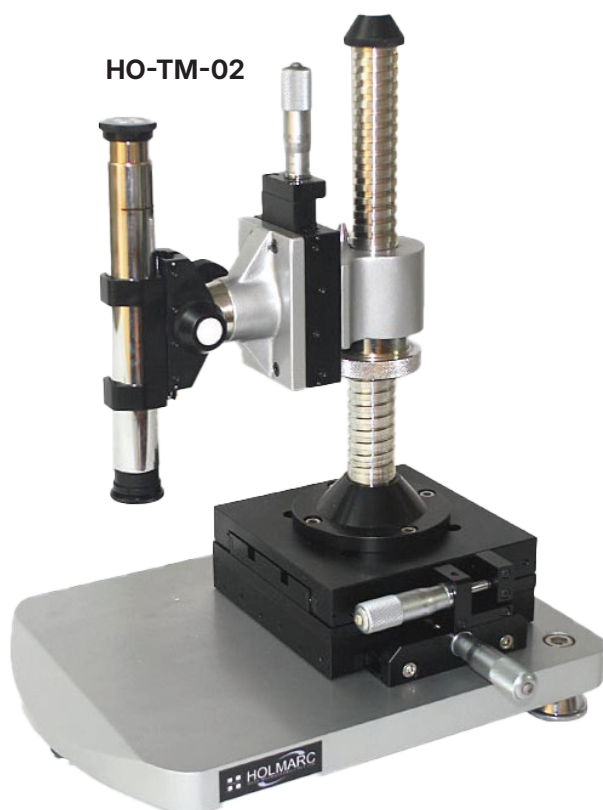
Holmarc's traveling microscope model HO-TM-02 is equipped with micrometer driven horizontal X, Y, and vertical Z stages. All the assembly is mounted on a heavy wide base with three point support for extra stability and leveling. The extra wide base can also be used for placing large objects for measurements.

HO-TM-02 can be used for wide applications in general purpose scientific and industrial measurements. Other applications include accurate determination of small variation in the liquid levels, determination of refractive index of liquids, surface tension, viscosity etc.

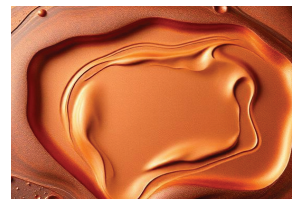
Horizontal Vertical Movements

The horizontal X and Y stages are equipped with micrometer head for precise and accurate measurements. Both stages provide 50mm travel with 10 micron resolution. The vertical stage (Z stage) is equipped with 130mm coarse travel and 25mm fine travel with 10 micron resolution. The coarse movement can be done by rotating the knob by hand and after locking the stage at a particular position fine movement can be done by the micrometer.

The microscope tube is mounted on a rotating arm which is 360 degree rotatable and lockable. A rack and pinion type focusing mechanism is attached to the microscope tube for focusing the objects. The microscope tube is fitted with 3X long working distance objective and 10X eyepiece with cross hair reticle.



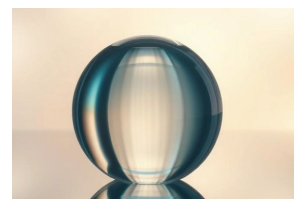
Surface Tension



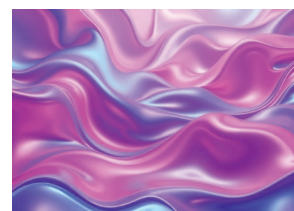
Liquid levels



Refractive index of liquids



Viscosity

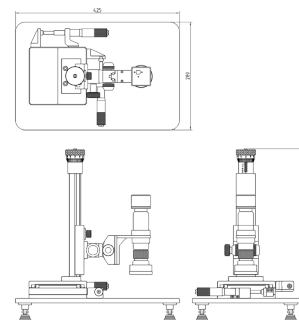


Digital Traveling Microscopes

Model No. HO-DTM-01

Holmarc's digital traveling microscope Model No. HO-DTM-01 is equipped with a 5MP CMOS color camera instead of an eyepiece. A ring type LED illuminator is provided around the objective for illuminating the objects. The microscope is mounted on a heavy wide base with four point support for extra stability and leveling. The extra wide base can also be used for placing large objects for measurements.

The horizontal (X, Y) and vertical (Z) stages are fabricated using precision roller bearing slides with micrometer head for precise and accurate measurements. Both stages provide 50 mm travel with 10 micron resolution. The vertical stage (Z stage) is equipped with 130 mm coarse travel and 25 mm fine travel with 10 micron resolution. The coarse movement can be done by moving the stage by hand and after locking the stage at a particular position the fine movement can be done by the micrometer head. The microscope tube is mounted on a rotating arm which is 360 degree rotatable and lockable. A rack and pinion type focusing mechanism is attached to the microscope tube for focusing the objects. The microscope tube is fitted with 3X long working distance objective, ring illuminator and CMOS camera. An image grabbing software is also provided with HO-DTM-01. With this software the user can capture the image by selecting suitable imaging parameters (like resolution, color or monochrome, exposure, etc.) and save it to a computer for later / further analysis. A reference cross line is integrated in the software for performing the measurements



Camera

Sensor	CMOS Color
Resolution	2592 * 1944 pixels (5MP)
Sensor Size	1 / 2.5"
Pixel Size	2.2 um x 2.2 um
Frame Rate	6 fps
Dynamic Range	70.1 d
Signal Noise Ratio	38.1 dB
Exposure Time	0.058 ms to 3000 ms
Sensitivity	1.4 V / Lux-sec
Spectral Range	380 nm - 650 nm
Data Interface	USB 2.0
Shutter	Electronic Rolling Shutter
Image Data Format	8bit RAW format
Operating Mode	Continuous
Base Construction	Cast Aluminium
Focusing	Manual, Rack & Pinion

Horizontal Movements

X Direction	Micrometer Head
Travel	50 mm
Resolution	10 micron
Y direction	Micrometer Head
Travel	50 mm
Resolution	10 micron

Vertical Movement

Z Direction	Micrometer Head
Coarse Travel	130 mm
Fine Travel	25 mm
Resolution	10 micron

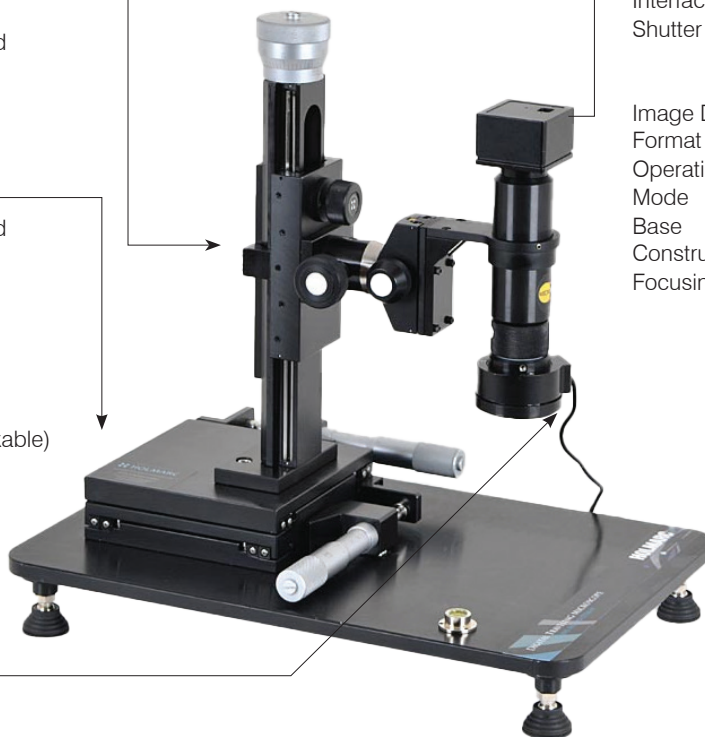
Observation tube

Rotation	360 degree (lockable)
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Objective

Achromatic Type	
Magnification	3 X
Focal Length	60 mm
Broadband AR Coated	

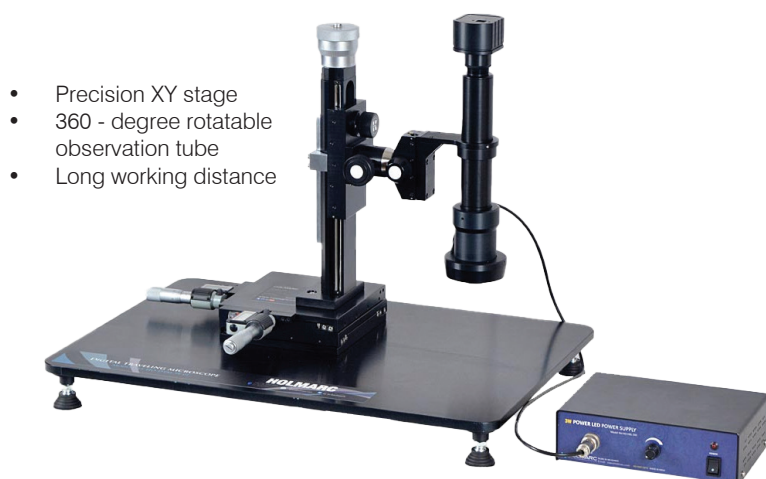
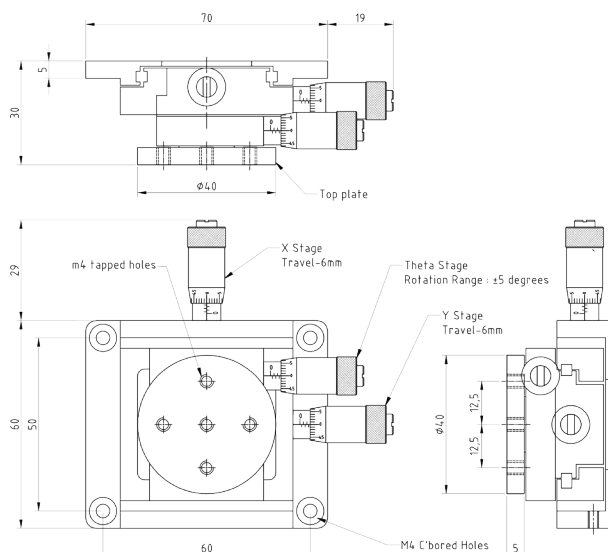


Digital Travelling Microscopes 5X

Model : HO-DTM-5X-01

Holmarc's digital traveling microscope Model No. HO-DTM-5X-01 is equipped with a Plan apochromatic extra-long working distance 5X objective and a 5MP CMOS color camera. An intensity adjustable LED ring illuminator is provided for sample illumination. The microscope is mounted on a heavy wide base with four-point support for extra stability and leveling. The extra wide base can also be used for placing large objects for measurements. The high precision XY stages are equipped with digital micrometer for precision measurements. The Z focusing stage is fabricated using precision roller bearing slide with micrometer head for precise and accurate measurements. XY stages provide 25mm travel each with a resolution of 1 micron while the Z stage provides 130mm coarse and 25mm fine travel with 10 microns resolution. The microscope tube is mounted on a rotating arm which is 360 degrees rotatable and lockable. A rack and pinion type focusing mechanism is attached to the microscope tube for focusing the samples.

An image grabbing software is DTM_V02 is included with system for capturing the image by selecting suitable imaging parameters (like resolution, color or monochrome, exposure, etc.) and save it to a computer for later / further analysis. A reference cross line is integrated in the software for performing the measurements



- Precision XY stage
- 360 - degree rotatable observation tube
- Long working distance

Model HO-DTM-5X-01

Horizontal Movements

X Direction	Micrometer Head
Travel	50 mm
Resolution	10 micron
Y direction	Micrometer Head
Travel	50 mm
Resolution	10 micron

Vertical Movement

Z Direction	Micrometer Head
Coarse Travel	130 mm
Fine Travel	25 mm
Resolution	10 micron

Observation tube	
Rotation	360 degree (lockable)

Objective

Achromatic	
Type	
Magnification	3 X
Focal Length	60 mm
Broadband AR Coated	

Base Cast Aluminium

Construction

Focusing	Manual, Rack & Pinion
We can provide custom configured traveling microscopes on request. Contact us at sales@holmarc.com	

Camera

Sensor	CMOS Color
Resolution	2592 * 1944 pixels (5MP)
Sensor Size	1 / 2.5"
Pixel Size	2.2 um x 2.2 um
Frame Rate	6 fps
Dynamic Range	70.1 d
Signal Noise Ratio	38.1 dB
Exposure Time	0.058 ms to 3000 ms
Sensibility	1.4 V / Lux-sec
Spectral Range	380 nm - 650 nm
Data Interface	USB 2.0
Shutter	Electronic Rolling Shutter
Image Data Format	8bit RAW format
Operating Mode	Continuous

Visual Autocollimator

Model : HO-OI-AC Series

Autocollimator is a versatile non-contact optical instrument for measuring small angles or tilt movements with very high sensitivity. Holmarc manufactures precision Visual autocollimators as well as electronics autocollimators as standard products and these instruments find a multitude of applications in shop floors as well as metrology labs for precision measurements of straightness, parallelism, perpendicularity and flatness.

Autocollimator projects the image of an illuminated reticle to the object under inspection and receive the reflected image from the object. This reflected image of reticle will focus at the position of a fixed reference cross wire on the eyepiece. Shift in reflected image compared to the fixed reference cross wire represents angle. A dual axis, micrometer driven linear stage helps the fixed cross wire to align it with the reflected reticle image. The shift in the reflected image can be determined by moving the fixed cross wire. Graduations on the micrometer give angular measurements directly in arc seconds.

Holmarc's autocollimator consists of a stainless steel body, high precision optics with Green LED illumination, and a 10X/20X eyepiece. In most cases, the object under inspection may not have reflective surfaces. In order to carry out the inspection, the operator needs to fix a plane mirror on the object to reflect the image back to the instrument. Holmarc supplies a mounted front coated mirror as a standard accessory.



Features

- High accuracy Angle measurements
- Non-contact measurement
- Repeatable Measurements
- LED illumination

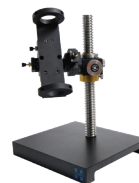
Accessories

Standard Accessories :-

Horizontal alignment stage
Plane parallel mirror with mount.

Optional Accessories :-

- Right Angle Prism
- Penta Prism
- V prism with Flat Mirror and Cross level
- Mirror with Mount and base plate
- Tripod
- Transparent Wedge
- Penta Prism with Wedge
- 45 degree mirror with mount
- Polygon Mirror with mount
- Vertical stand with height adjustment & 3 axis freedom for alignment



Accessories

Vertical Stand with height adjustment and 3 axis freedom for alignment



Accessories

Tripod

Applications

- Measurement of parallelism of two surfaces
- Measurement of perpendicularity of two surfaces
- Parallel setting of rolls
- Pitch and yaw measurement of slides
- Measurement of roll-angle
- Straightness Measurement
- Flatness Measurement
- Squareness measurement between a vertical spindle and a machine bed
- Parallelism measurement of cylindrical bore holes
- Testing of accuracy of rotary tables and index tables
-
-

Applications in Mechanical Engineering / Tool Room

1. Measurement of parallelism of two surfaces
2. Measurement of perpendicularity of two surfaces
3. Parallel setting of rolls
4. Pitch and yaw measurement of slides
5. Measurement of roll-angle
6. Straightness Measurement
7. Flatness Measurement

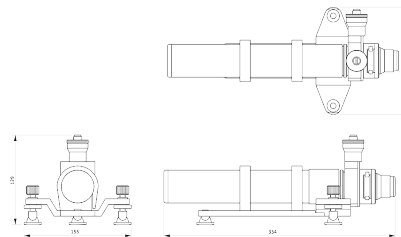
Applications in Optical Engineering / Optical Industry

1. Testing of parallelism with Collimator and Telescope
2. Testing of opaque wedges and plane parallel plates
3. Testing of transparent wedges - evaluation by double cross
4. Testing of transparent wedges - evaluation by reference mirror
5. Testing of transparent wedges - simultaneous determination of wedge angle and refractive index
6. Testing of transparent wedges - evaluation by angular deviation
7. Testing of the 90° angle of a 90° - glass prism
8. Testing 45° angles of 90° - glass prism
9. Relative measurement of angular error of prisms
10. Testing of camera objectives
11. Radius measurement of concave spherical surfaces
12. Radius measurement of convex spherical surfaces
13. Measurement of focal length of lenses and optical systems
14. Measurement of back focal lengths of lenses & optical systems
15. Measurement of the centration error of spherical surfaces
16. Measurement of centration error of lenses in transmission using Collimator and Telescope
17. Measurement of centration error of lenses in transmission using Autocollimator and Mirror
18. Flatness testing of reflecting surfaces using collimator & telescope
19. Flatness testing of reflecting surfaces using an Autocollimator
20. Control of wedges and plane parallel plates

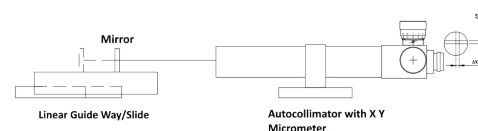


Specifications

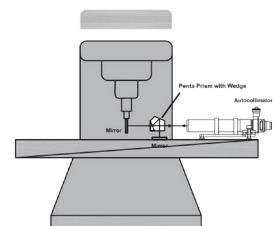
Model :	HO-OI-AC3	HO-OI-AC1
Readout	Micrometer	Micrometer
Measurement axis	Dual (X,Y)	Dual (X,Y)
Resolution	3 arc seconds	1 arc seconds
Accuracy over full range	30 arc seconds	10 arc seconds
Measurement range	±0.5 degree	±20 arc minutes
Field of View	1 degree	40 arc minutes
Clear aperture	30mm	35mm
Reticle Illumination	Green LED – Adjustable intensity	
Mounting option 1	Horizontal alignment stage	
Mounting option 2	Vertical stand with height adjustment and 3 axes freedom for alignment	
	# With horizontal alignment stage & parallel mirror with mount as the basic accessories	



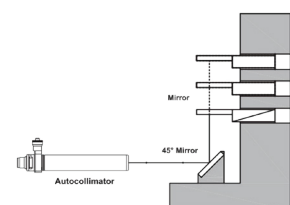
Pitch and yaw measurement using Autocollimator



Squareness measurement between a vertical spindle and a machine bed



Parallelism measurement of cylindrical bore holes



Electronic Autocollimator

Model : HO-OI-EAC

Autocollimator is a versatile noncontact optical instrument for measuring small angles or tilt movements with very high sensitivity. Holmarc manufactures precision Electronic autocollimators as well as visual autocollimators as standard products and these instruments find a multitude of applications in shop floors as well as metrology labs for precision measurements of straightness, parallelism, perpendicularity and flatness.

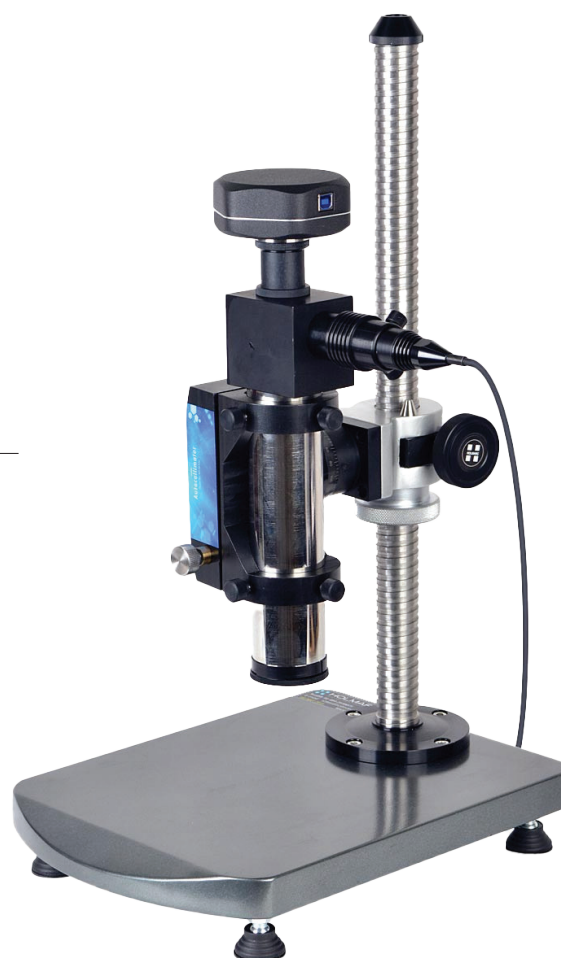
Holmarc's Electronic autocollimator consists of a stainless steel body, high precision optics with Green LED illumination, and a 5MP CMOS camera. A user friendly software is included with the system for measurements. Autocollimator projects the image of an illuminated reticle onto the object under inspection and receives its reflected image on the camera sensor. The software calculates the shift in the reflected image and shows the corresponding angles in seconds, minutes or degrees.

In most cases, the object under inspection may not have reflective surfaces. In order to carry out the inspection, the operator needs to fix a plane mirror on the object to reflect the image back to the instrument. Holmarc supplies a mounted front coated mirror as a standard accessory.



Specifications

Model :	HO-OI-EAC
Readout	Software
Measurement axis	Dual
Resolution	0.79 arc seconds
Accuracy over full range	7.9 arc seconds
Measurement range	± 17 arc minutes(Horizontal), ± 12.5 arc minutes (Vertical)
Field of View	34 arc minutes(Horizontal), 25 arc minutes (Vertical)
Clear aperture	30mm
Reticle Illumination	Green LED, Adjustable intensity
Mounting option 1	Horizontal alignment stage (standard accessory)
Mounting option 2	Vertical stand with height adjustment and 3 axes freedom for alignment (Optional)



Digital Autocollimator

DAC216 Series

HOLMARC DAC216 series Autocollimators are PC based instruments which are designed to operate in the lab as well as in a machine shop environment. No external controller is required. The standard interface is a single USB connection for power input and data output. DAC216 series Autocollimators are high-precision dual axis angle measurement system that utilizes digital imaging technologies to measure the two angular positions relative to the reflective surface. Their exceptional accuracy and high resolution make them suitable for applications including the calibration of rotary tables, verification of angle standards and for remote or long term angular monitoring operations. The main applications are in calibration laboratories, optics labs, opto-electronic laboratories and productions, laser based industries, space laboratories, etc.

The DAC216 series Autocollimator can be operated with a remote computer or as a stand-alone instrument. Stand-alone unit utilizes a compact tablet PC for displaying accurate deflection of reflective mirror. The tablet pc is also loaded with the fully featured software which provides graphical output of measurements and complete set of functions for the instrument setup, alignment and measurement in addition to other useful functions and information. Resolution of DAC216 series autocollimator starts from 0.16 arc-seconds in both X & Y axes with a system accuracy of ± 0.16 arc-seconds at close range and ± 0.32 seconds in overall range. As always, all of our products can be customized to fit your specific application. All models come with two axis tilting platform, target mirror and DAC software. Two axis tilting platform is a three point mounting system which establishes a planar reference. A leveling base provides 3 dimensional adjustment control which allows fine adjustment in azimuth and elevation in the range of $\pm 4^\circ$ and $\pm 1^\circ$ roll adjustment.

Features

- High precision
- Real-time measurements
- User-friendly interface
- Creating data reports and transferring in other programs



Specifications

Angular Range

Horizontal	
Vertical	1505 Arc Sec
	1003 Arc Sec

Angular Resolution

Maximum	0.275 Arc Sec
Minimum	0.825 Arc Sec

Readout Rate

Maximum	67 Frame / Sec (Res 0.825 Arc Sec)
Minimum	14 Frame / Sec (Res 0.275 Arc Sec)

Operational Range (Full Angular Range)

Minimum	0 m
Maximum	1.83 m
Minimum measurement	10 mm dia. mirror at 1.5 m
Illumination Source	Laser or LED, External Power Supply
Measurement Mode	Fully automatic - PC based
Interface	USB 2.0
Measurement Axis	X & Y

For Faster Measurement

Faster measuring autocollimators are used for applications such as scanning the angular changes of devices or assemblies using a reflector.

Model	DAC216-F286A	DAC216-F286
XY Measurement range	3470 x 2739 Arc Sec	2053 x 1540 Arc Sec
Resolution	5.4 Arc Sec	3.2 Arc Sec
Clear aperture	40 mm	40 mm
Illumination	Laser or LED	Laser or LED
Rate of Measurements	120 fps.	120 fps.
Minimal reflector diameter	Ø10 mm (mirror) Ø30 mm (glass)	Ø10 mm (mirror) Ø30 mm (glass)
Operational Range	1.5m	1.5m
Interface	USB 3.0	USB 3.0

For high resolution measurement

Model	DAC216-R900A	DAC216-R900B
XY Measurement range	737 x 527 Arc Sec	653 x 490 Arc Sec
Resolution	0.16 Arc Sec	0.25 Arc Sec
Illumination	Laser or LED	Laser or LED
Rate of Measurements	120 fps.	120 fps.
Minimal reflector diameter	Ø10 mm (mirror) Ø30 mm (glass)	Ø10 mm (mirror) Ø30 mm (glass)
Operational Range	1.5m	1.5m
Interface	USB 3.0	USB 3.0



Designed @ HOLMARC Design LAB
Cochin, May 2025



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