

Vision Measuring System



Company Profile

Unimetro, the measuring expert and consultant of quality control and management.

Since established in 2008, Unimetro has always been devoting to researching, developing and manufacturing of measuring technology and products. Especially for the 2D 3D composite measuring Unimetro is the leader of the industry.

After more than 10 years development, the Unimetro products are sold to many countries and regions in the world. We have partners in more than 15 countries, offering high quality products and service to local customers and have earned their trust and compliment.

Our team is professional and passionate, which has more than 10 to 20 years experience in the metrology industry. We will use our knowledge and experience to offer our customers and distributors the best measuring solution, and this last in the process of model selecting, technology supporting, after sales service and continuous training service.

The Unimetro products are widely used in different industries such as metals, molding, PCB, electronics, plastic, pressing, horological industry, automobiles, and LCD. Our products are trusted partners in the process of quality control, product design and process control in customers? factories.

Unimetro will keep holding the faith of high quality and the best service, offering better products and solutions to our distributors and customers all over the world.



Quality management system and R&D

- ■ISO9001 Quality Management System
- ■CE certificates
- Multiple patents

















UNIMETRO METROLOGY

GLOBAL SERVICE

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UNIMETRO vision measurement machine series has strong applicability and generality in the precise dimension measuring area, which allows UNIMETRO offering great contribution to the quality control process of different industries such as medical care, plastic injection, electronics, auto motive and aviation, etc.



UNIMETRO products core value

Compact and smart design
User-friendly with powerful function
Stable
Details oriented
Functional flexibility
Leading software
Innovation







ULTRA Series CNC Automatic Vision Measurement Machine

ULTRA series CNC automatic Vision Measurement Machine is the latest model from UNIMETRO, which offers outstanding measuring performance. The full ULTRA series is config with high accuracy linear slide way, GIGA high resolution digital camera, 3 axis linear scales with 0.0001mm resolution, which ensure more stabe hardware dynamic performance and measuring accuracy.





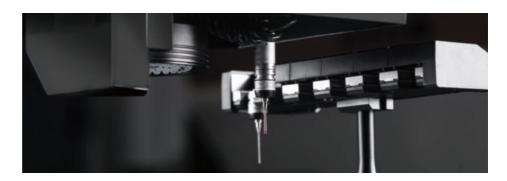
Amazing quality

Aluminum work stage, makes the motion control fast reacting and flexible.

Work stage with hard oxidation surface processing, anti-scratch.

Standard with precise linear slide way, offers smarter mechanical structure and higher accuracy.

Integrated control system, embedded with motion control, and all signal control as illumination and linear scale reading, ensures the performance of the machine is extremely stable.



High performance measuring device

With the External-Array RationalVue composite measuring software, the ULTRA series is capable to offer powerful 2D/3D composite measuring function.

Multi types of non-contact sensors and fast fixturing system are for option, which can satisfy different measuring requirement from different customers.

Movable color LED ring light is available for the ULTRA series, which makes the series more flexible and powerful to different parts with different kinds of materials or shapes, offers more powerful measuring application.

Flexible expansibility

Thanks to the flexible expansibility of ULTRA series, it is compatible with touch probe, non-contact measuring sensors and robot arm, highly increase the measuring efficiency.

Items		ULTRA300	ULTRA400	ULTRA500	ULTRA600			
Dimension(mm)(L \times W \times H)		1600×780×1700	1750×920×1700	1850×1180×1700	1950×1280×1700			
$\overline{\text{Measuring range(mm)}(X\times Y\times Z)}$		300×200×200	400×300×200	500×400×200	600×500×200			
Measuring Accuracy(µm)		2.5+L/200	2.5+L/200	2.5 + L / 200	2.5 + L / 200			
Repeatability (μm) 2.5 2.5 2.5				2.5				
Weight (kg)		320kg	390kg	460kg	560kg			
	CCD	2 million pixel HD GIGA digital camera						
	Lens	Fully automatic zoom objective 1~10X						
mage and Measuring	Magnification	18 - 195X (For reference only, with different camera and lens combination, the value will be different.)						
	Field of View	8.1~1.3mm(For reference only, with different camera and lens combination, the value will be different.)						
	Working distance	108mm						
Linear scale resolution		0.1μm						
Driving system		CNC control, close-loop AC Servo driving system, joystick, mouse or keyboard control						
Illumination		Programmable 8 sections LED ring surface light, parallel LED contour light, (40 section LED ring light, co-axial light, movable multi color ring light for option)						

PEAK Series Economical CNC Automatic Vision Measurement Machine

- _The most compact design CNC Vision Measurement Machine
- _The economical Universal Vision Measuring Solution
- _High adaptability to multiple measuring sensors
- Flexible application scenario
- _Outstanding Imaging system
- _Powerful Measuring Software



*The electric control cabinet is optional



Simple & Stable

We carry the philosophy of simple and stable in the designing process of the PEAK series through to the end. We eliminate the unnecessary mechanical parts, integrate all the electronics inside the mechanical structure, optimize the wiring, to ensure the machine stability and easy maintainence.

High adaptability to multiple measuring sensors

The PEAK series support multiple measuring sensors solution. Touch probe, laser sensor and white light sensor are all compatible. Which allows much wider application range for different measuring requirement.

Economical vision measuring solution

The simple and integrated design allow us to build the machine with lower cost, in the mean time keep the high measuring accuracy and best performance. Users are able to enjoy the advantage of high efficiency and labor cost saving from a full CNC vision measurement machine with very low price.

Flexible application scenario

Thanks to the optimize design, powerful software function and great second development potential, the PEAK series can be applied for different industries and in different scenario.

Items		PEAK300	PEAK400		
Dimension(mm)(L×W×H) 810 610 1055 960 710 1075		960 710 1075			
Measuring range(mm)(X×Y×Z) 300 200 200 400×300×200		400×300×200			
Measuring A	Accuracy(µm)	curacy(µm) 3+L/200 3+L/200			
Repeatabilit	y (μm) 3 3				
Weight (kg) 330kg 380kg		380kg			
	CCD	Industrial grade color CCD camera			
	Lens	Manual dented zoom lens 0.7 - 4.5X(Optional manual electronic feedback signal zoom lens or automatic zoom lens)			
Image and Measuring	Magnification	18 - 195X (For reference only. With different camera and lens the magnification will be different.)			
Ü	Field of View	8.1~1.3mm(For reference only, with different camera and lens combination, the value will be different.)			
	Working distance	90mm			
Linear scale resolution 0		0.5μm			
Driving system		CNC control, close-loop AC Servo driving system, joystick, mouse or keyboard control			
Illumination F		Programmable 8 sections LED ring surface light, parallel LED contour light, (40 section LED ring light, co-axial light, movable multi color ring light for option)			

EXTRA Series Manual Vision Measurement Machine with Auto Focus

The EXTRA series manual vision measurement machine provides extra measuring function and user experience to customers over normal vision measuring products. The series configured with servo motor in Z axis, including manual pulse generator for fine potisioning fine adjusting, also with auto focus function, which highly increase the measuring process efficiency and end user experience.





Smart design

For the EXTRA series machines mechanical design we are following the concept of light weight, smart and compact, in the mean time keeps the rigidity and stability. With lowest space occupation offers the highest measuring range.

High accuracy transmition system

The EXTRA series is using high accuracy linear slide way, which is totally different from the cross slide way used for other manual VMM, ensures much more stable and accurate transmitting of the work stage, also voiding the potential risk of the shorten traveling range which caused by the cross slide way.

3D measuring function

Working with the UNIMETRO professional 3D measuring software, the EXTRA series VMM will provide strong 3D measuring function, which becomes a powerful 2D/3D composite measuring device with extremely reasonable price.

Items		EXTRA200	EXTRA300	EXTRA400	EXTRA500			
Dimension(mm)(L \times W \times H)		550 540 930	600 740 980	700 840 980	800 940 980			
$\overline{\text{Measuring range(mm)}(X\times Y\times Z)}$		200×100×150	300×200×200	400×300×200	500×400×200			
Measuring Accuracy(µm)		2.5+L/100	2.5+L/100	2.5+L/100	3+L/100			
Repeatability (μm) 2.5 2.5 2.5			2.5	3				
Weight (kg)		140kg	190kg	240kg	290kg			
	CCD	1.2 million pixel digital camera						
	Lens	Manual dented zoom lens with magnification signal feedback 0.7-4.5X						
Image and Measuring	Magnification	18 - 195X (For reference only. With different camera and lens the magnification will be different.)						
	Field of View	8.1~1.3mm(For reference only, with different camera and lens combination, the value will be different.)						
	Working distance	90mm						
Linear scale resolution 0.		0.5µm						
Driving system		X/Yaxis manual control, Zaxis CNC full closed loop motion control (including auto focus function)						
Illumination		Programmable LED 4-zone ring surface light, LED bottom parallel light (optional: 8-zone ring light, coaxial light)						

BASIC Series Manual Vision Measurement Machine

BASIC series optical measuring machine is an important instrument used in your products quality control process. It ensures your products dimension accuracy, makes your products more competitive.





High accuracy hardware configuration

The Series is configured with high accuracy linear guide way, provides unique dynamic performance and end user experience. Also includes full programmable 8 sections LED surface illumination ring, 3 axis 0.0005mm high resolution linear transducers, and powerful measuring software.

Reverse engineering

BASIC series VMM is compatible with Renishaw touch probe as optional configuration. Users can easily achieve 2D and 3D measuring function in one machine. The software can calculate the offset between the optical lens and touch probe, makes sure that all measuring results are within one coordinates system. The measuring results can be out put as 3D drawing for reverse engineering.

Compact and accurate

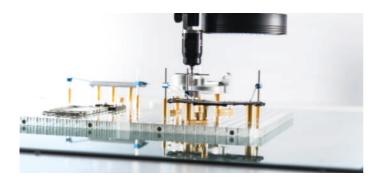
BASIC series VMM is the most common model for most of the factories manufacturing accurate parts. It is fit for small quantity samples measuring application. 3 axis manual control, with user friendly software, allows the operator to manage using the machine in very short time.

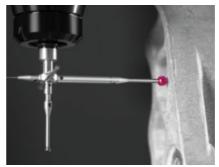
Items		BASIC 200	BASIC 300	BASIC 400	BASIC 500			
Dimension(mm)(L \times W \times H)		550 540 830	600 740 890	700 840 890	800 940 890			
Measuring range(mm)($X \times Y \times Z$)		200×100×150	300×200×200	400×300×200	500×400×200			
Measuring Accuracy(µm)		2.5+L/100	2.5+L/100	2.5+L/100	3+L/100			
Repeatability (µm)		2.5	2.5	2.5	3			
Weight (kg)		140kg	190kg	240kg	290kg			
	CCD	1.2 million pixel digital camera						
	Lens	Manual dented zoom lens 0.7 - 4.5X(Optional electronic magnification signal feedback lens)						
Image and Measuring	Magnification	18 - 195X (For reference only. With different camera and lens the magnification will be different.)						
	Field of View	8.1~1.3mm(For reference only, with different camera and lens combination, the value will be different.)						
	Working distance	90mm						
Linear scale resolution		0.5µm						
Driving system		X/Y/Z axis manual control						
Illumination		Programmable LED8 zone ring surface light, LED bottom parallel light (optional: coaxial light)						

HE Series Gantry Type CNC Automatic Vision Measurement Machine

The HE series high accuracy gantry type vision measurement machine combines high accuracy and high efficiency, offers high speed measuring for the geometric elements of different kinds of parts. The HE series is widely used in varies industries and products as PCB, copper clad laminate, pad glass, LCD modules, and insulation materials etc.







High rigidity

- Finite elements analysis is introduced in the designing process of the HE series, ensures high rigidity and accurate mechanical structure.
- The machine base is using closed frame movable bridge type structure, which is simple and offers high loading capability and the best motion performance.
- 000 grade granite machine base, offers high rigidity, corrosion resistance and high stability.

Flexibility and high accuracy

- -The work stage is able to preset multiple products fixturing solution, also multiple lens combination is for option, satisfy different measuring requirement from different customers.
- Full close loop motion control system, ensures the best movement and positioning performance.

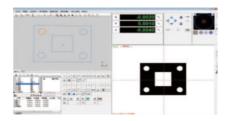
Multiple sensors solution

The HE series gantry type vision measurement machine can combine multiple measuring sensors in one machine, including image system, touch probe, laser sensor and white light sensor. Also supporting full line of Renishaw probe magazine, all the external measuring devices can run on the same coordinates system, which allows the HE series be compatible with different measurement application.

Items HE652		HE862	HE1080	HE1210	HE1512	HE1812			
Dimension(mm)(L \times W \times H) 1700 \times 1180 \times 1750		1700×1280×1750	1900×1480×1750	2100×1680×1750	2500×1880×1750	2700×1880×1750			
Measuring range(mm)(X \times Y \times Z) 500 \times 600 \times 200 600 \times 800 \times 200 800				800×1000×200	1000×1200×200	1200×1500×200	1200×1800×200		
Measuring /	Accuracy(µm)	ım) 3+L/200 3+L/200 3+L/200 3+L/200				3+L/200			
Repeatabilit	tability (µm) 3 3 3 4 4				4				
Weight (kg)		1500kg	1800kg	2900kg	3200kg	4400kg	4800kg		
	CCD	2 million pixel HD GIGA digital camera							
	Lens	Fully automatic zoom lens 1~10X							
Image and Measuring	Magnification	18 - 195X (For reference only. With different camera and lens the magnification will be different.)							
	Field of View	8.1~1.3mm(For reference only, with different camera and lens combination, the value will be different.)							
	Working distance	82mm							
Linear scale resolution 0.5µm(0.1µm fo		0.1μm for option)							
Driving system CNC control, A		CNC control, AC fu	NC control, AC fully closed loop servo motor drive; rJoystick control, mouse/keyboard control						
Illumination Programmable LED8 partition ring surface light, LED bottom parallel light (optional: 4 adjustable color light source)			nal: 40 partition ring	light, coaxial light,					

UNIMETRO-INSPECT standard measuring software

UNIMETRO - INSPECT standard measuring software is a self-developed VMM software from UNIMETRO Metrology, which is available for manual, semi-auto or full automatic 2D/3D composite measuring function. The UNIMETRO - INSPECT standard measuring software offers powerful 3D measuring function, compatible with full lines of UNIMETRO VMM products. UNIMETRO - INSPECT measuring software is supporting MCP or TP20 series touch probe kits, even star type styli kit, users are able to achieve full 3D measuring function with the software.



User friendly

The INSPECT software is with user friendly UI, which allows user to accomplish the measuring task with very high efficiency. All the main function keys are displayed in the main window page, which is easy to manage. User can use most of the complicated measuring function by only clicking and dragging the mouse.



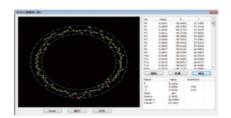
Image nevigation

The INSPECT software is capable to control the machine to capture the complete picture of the part, or user can input a part picture directly, used as the nevigation map, and the pixel points will be used as reference to locate the required measuring position. When user is measuring a large part, this function helps to locate the measuring position rapidly.



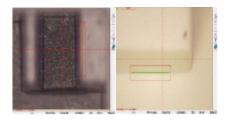
CAD input

By inputing the CAD file to the software, user can achieve automatic measuring without any element selecting operation, which is convenient for the coordinates measuring and contour comparison operation of the parts with complicated shape.



Auto tolerence calculation

The INSPECT software is offering complete tolerence setting and calculation function, including straightness, roundness, flatness, cylindricity, profile tolerence, parallelism, verticality, concentricity, and run-out. Including auto adjusting result OK/NG, and outputing graphical measuring reports.



Powerful weak edge detecting

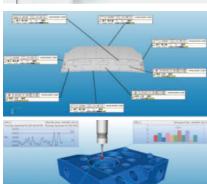
The INSPECT software is able to detect weak edge which is not very clear in the image. The edge detecting direction can be freely set, avoiding edge detecting error. The INSPECT software is also offering flexible parameters setting of edge detecting operation, eliminating the influence of noise points and burrs.



Rational Vue mesuring software

RationalVue is the first vision measuring software including the CAD function, also the first to combine the vision, probe and laser sensor measuring function in one single software and all the function are freely switchable. RationalVue is with the features of easy use, 100% graphical, real time model comparison, multiple diagram format and advanced algorithm, ensures the reliability of the algorithm and in the mean time offers easy operation and powerful function.





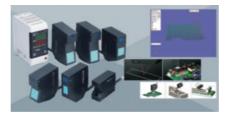
Comparison based on multiple 3D format

- The software allows users to input 3D files of Iges format or CAD files of DXF format
- The CAD file can be used for guiding measuring, guiding the software to do comparison between the theoretical values and the measuring results.



Measure height and flatness by focusing

Thanks to the advanced focusing algorithm from RationalVue, the machine can achieve fast and precise focus operation to the parts, finish the focusing process within 2-3 seconds. The repeatability of the focusing can be up to 0.003mm, which is able to be used for measuring of height or flatness



Supporting laser sensor measuring

The RationalVue software is supporting the KEYENCE and Panasonic laser sensors. RationalVue is offering professional laser measuring function, allows the users to set pace and achieve non-contact measuring function automatically, complete the calculation of height, flatness and profile tolerance of the curved surface.



PTB certificate

The Rational Vue software has passed the PTB certificate (Physikalisch-Technischen Bundesanstalt). Which ensures the software accuracy and reliability by official authority.

Special edge measuring



RationalVue is able to filter the burrs of the measuring parts edge, increase the measuring accuracy. RationalVue is able to filter the burrs of the measuring parts edge, increase the measuring accuracy.



Self-developed advanced edge sharpen function, ensures the software can precisely detected blurry edge or edge with large burrs, which ensures the real automatic measuring function.

Accessories

UNIMETRO is offering flexible optional accessories, to satisfy different measuring application requirement.



UNIMETRO ILLU - PRO series programmable movable color LED ring light

The ILLU - PRO series illumination system is including programmable gray level control, section control, single / mixing color, programmable movement and strobeflash illuminating function. Offering reliable and high efficient illuminating solution for varies of complicated vision measuring application.



Renishaw touch probe series

The UNIMETRO VMM series products support full line of Renishaw touch probe series and probe magazine (For CNC models only). User can easily measure basic 3D element as plane, angular surface, curved surface, cylinder, ball, etc. Also for 3D dimension as flatness, 3D parallelism, 3D distance, etc. With RationalVue software user can achieve the IGES comparison function as on a CMM machine.



Non-contact measuring sensors

The UNIMETRO VMM series products support most of the popular models of non-contact measuring sensors in the market, including most of the brands as Keyence, Umron, and Precitec. User can achieve noncontact 3D measuring function such as height, flatness, curved surface, or curve with very low cost. The noncontact measurement technology is compatible with most of the measuring application regardless of the materials or color of the part, even for transparent materials. With the powerful software, the UNIMETRO VMM series is combining the traditional video measuring, contact measuring and non-contact measuring technology in one machine, highly increase the flexibility and praticality of the devise.

CMM & VMM Fixturing System

FLEXFIX



CMM Fixturing System

The UNIMETRO Flexfix series fixtures series are widely used in varies industries such as electronics, aerospace, automotive, plastic or medical care. It can be introduced to all sizes and models of CMM and VMM. They are the tools which make your measuring process flexible, repeatable, and standardized.





Modular Fixturing for your CMM

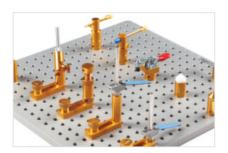
FlexFix series CMM fixtures system is designed and developed by UNIMETRO which means to help CMM users to improve the reproducibility and accuracy of the inspection process by providing quick and repeatable fixturing set-ups for the components. FlexFix series CMM fixtures are modular and can be expanded with user's requirements to provide a complete fixturing solution for any part regardless of its size, shape or material.

For multiple applications such as electronics, aerospace, automotive, plastic or medical care, the FlexFix series can provide a full solution to the CMM fixturing requirements. The series offers fixture plates with M8 threaded fittings in a wide choice of standard sizes, which are made of high accurate aluminum material and with complex manufacturing process, to ensure the accuracy and reliability of the system. Perfect fixturing solutions can be assembled very quickly without any tools to increase throughput and avoid delays in inspection.

Choosing your fixturing kit

Flexfix series CMM fixtures are sold as kits to make a easy starting. A kit consists of one base board and a comprehensive set of components.

We are offering different sizes option for the base plates and user should select the suitable one based on the CMM machine size and measuring requirement.





CMM Fixtures Components

The Flexfix series Fixturing components are designed to hold components firmly with the minimum necessary force and without any special tools, all components are with different function including supporting, clamping or pressing. The reasonable design allows to avoid damage or distortion on the measuring part. With these flexible components users are able to create different type of fixturing combination for varies of parts. Also it is easy to set up a clear probe path of 3D measuring.

CMM base plates

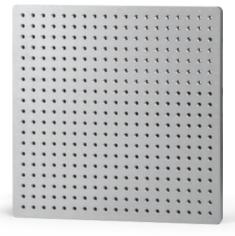
Multiple sizes of base plates are available for option for the Flexfix series CMM fixtures. Which allows wide range of application for different size of CMM and also satisfying different size of components fixturing requirement.

A complex manufacturing process is required for the CMM fixtures base plates which includes CNC machining, precision grinding, anodise coating, and laser marking, to make the plates with high accuracy, flatness and reliability. And except the standard sizes we also offer customized sizes and threads holes.

The fixture plates are offering an alphanumeric grid pattern and each fixturing component has its part number easily visible. It makes the user set-up can be fully defined and documented by recording the assembly and location of each of the fixturing components, so that the same set-up can be quickly and accurately reproduced for subsequent inspections.

Plates sizes:

400*300mm, M8 Threaded holes 400*400mm, M8 Threaded holes 500*500mm, M8 Threaded holes 600*600mm, M8 Threaded holes Other customized sizes



VMM fixtures

The vision measurement machine application is always coming with varies of different parts with different shapes or materials. Some are even without any effective reference plane to be correctly located on the work stage. Developing specific fixtures for each component should be with low efficiency and high cost. So we have developed the Flexfix series VMM fixtures kit and base plates, to help users saving time and cost but also be able to achieve fast and reliable fixturing during the VMM measuring process. The Flexfix series helps to improve the throughput, reproducibility and accuracy of the inspection process with quick and repeatable fixturing set-ups.

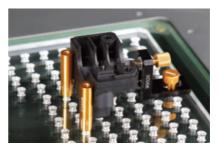




VMM fixture kits

The Flexfix series VMM fixtures are designed as a complete components kit. We have studied most of the VMM measuring application from our experience of VMM users, and have taken reference to different types of parts, to develop the fixtures kit components. The kit is including supporting, pressing, and holding components, which allow the user to manage the fixturing easily and no special tools as required. Regardless of shapes or materials, user can easily find the fixturing solution during measuring process.





Fixture kits Components

All components are made by precision manufacturing process and with anodise coating. Each part is with laser marking coding, so all the combination of the components can be repeatable for the subsequent inspections. Which helps to eliminate the variation of different parts or operators, and increasing the measuring accuracy and repeatability.

Base plates

For VMM measuring needs contour measuring application under most circumstances, we create the VMM fixtures base plate with high transmittance and flatness acrylic material, which to ensure the straight light path from the contour light, keeping the original measuring accuracy of the machine.

Metal M4 screw threads are mounted inside the base plate, the components can be firmly fixed and highly increase the life cycle of the base plate.

Also an L type magnetic fast mounting corner is offered, user only needs to put and measure, which largely increase the measuring efficiency.

Base plates sizes
300*200mm, M4 threads
400*300mm, M4 threads
300*300mm, M4 threads
400*400mm, M4 threads
Customized sizes





Our service

UNIMETRO is devoting to offer the best metrology products and solution, also offer the best after sales service.

Free on-line support, free software upgrade and fast reaction of after sales service ensure the satisfaction of our customers and dealers.

Global market

Dealers or distributors all over the world are welcome and we will offer full support in commercial and technical phase.

UNIMETRO is always providing products with the best price performance ratio and the best service.

OEM and special measuring solution

UNIMETRO is available for OEM service for our distributors.

Thanks to the professional technical team of UNIMETRO, we are also capable for varies kinds of special measuring solution or devices development, please consult to our engineer if you have such kind of requirement.

UNIMETRO INTERNATIONAL TRADING CO., LTD. HONGKONG

Global partners



