

Inspection and Measurement Systems

Since 1981, RAM Optical Instrumentation (ROI®) has been a leading provider of high quality optical inspection and measurement systems to manufacturing companies worldwide. Customer use the precision of video technology, from RAM Optical to maintain and improve product quality. Reduced set up time, non-destructive sampling, high throughput, and consistent, repeatable results from user to user are some of the exceptional benefits RAM Optical systems provide.

RAM Optical designs systems to meet and exceed your specific application needs. All RAM Optical systems are designed for ease of use, and have rugged, real world designs that maintain value and long term reliability.

There are RAM Optical Measurement Systems for:

Automatic Measurement — completely automatic CNC programmed operation

Manual Measurement — interactive or programmed measurement with precision manual control

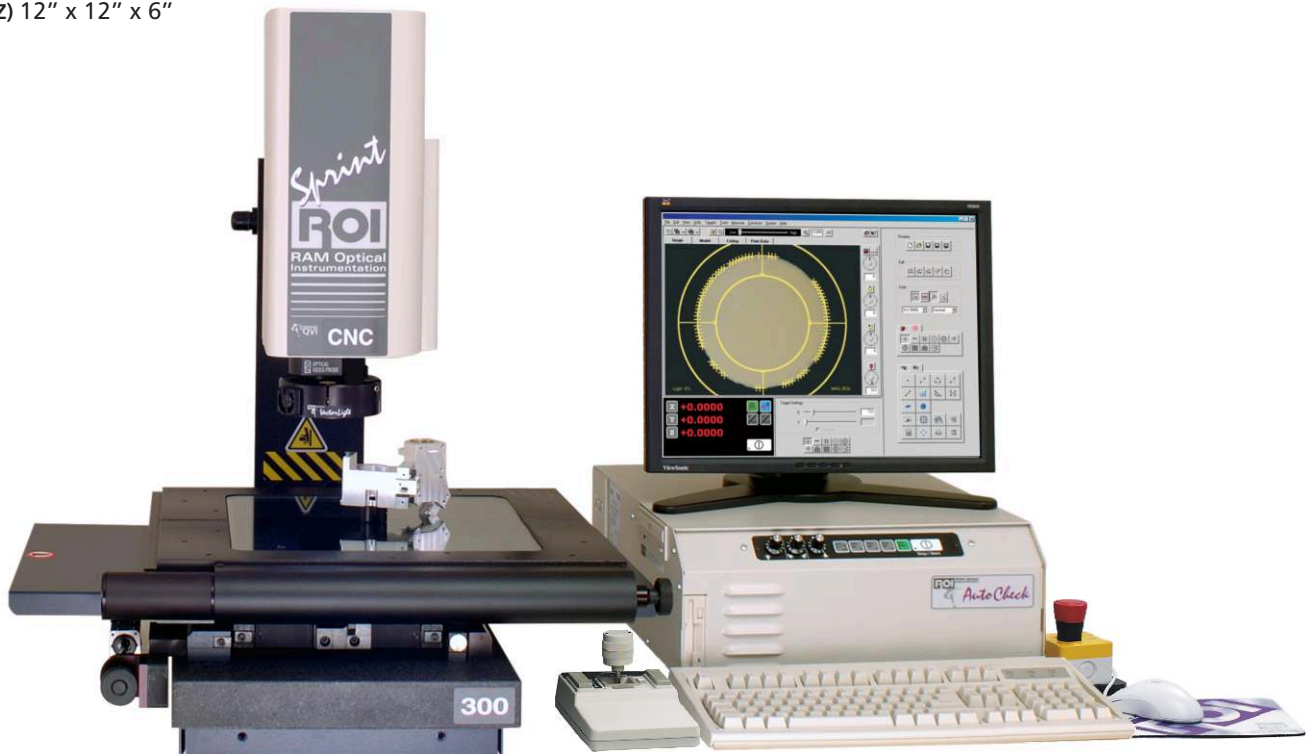
Visual Inspection — compact video inspection systems provide comfortable, high resolution viewing of parts and assemblies

Laser Profiling — portable laser scanning systems for high-resolution surface profiles

RAM Optical Measurement Systems

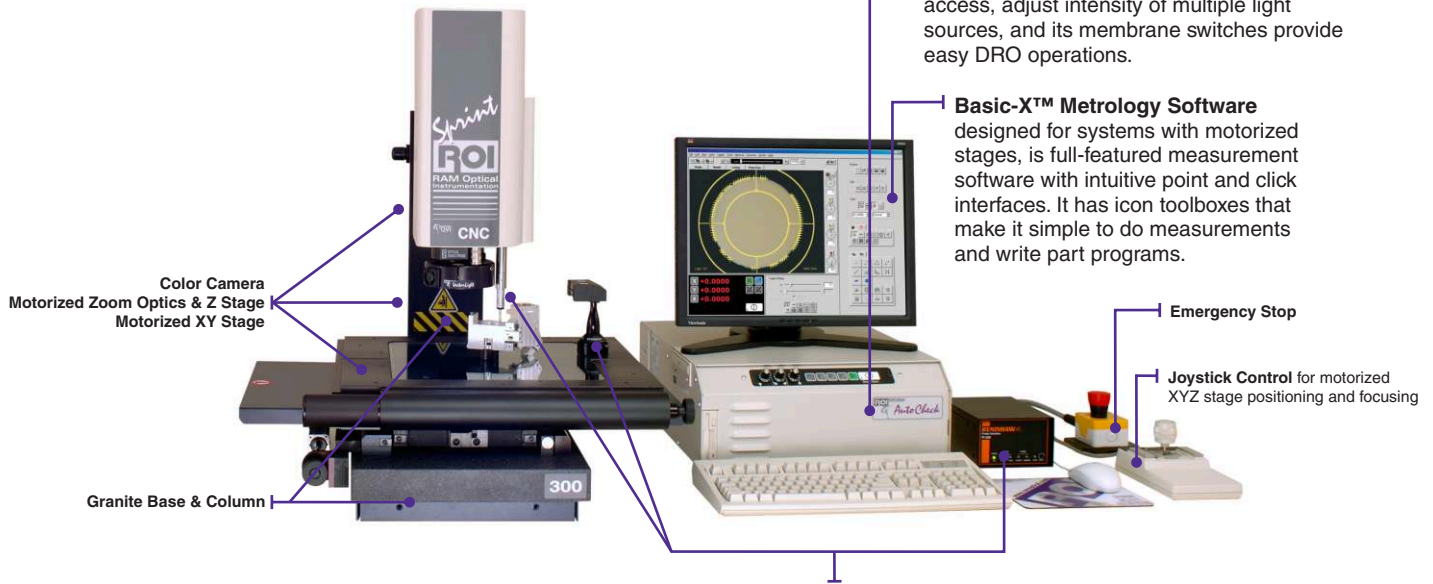
Sprint CNC 300

SYSTEM Sprint CNC 300
ELECTRONICS AutoCheck™
SOFTWARE Basic-X™
TRAVEL (XYZ) 12" x 12" x 6"



Sprint™ CNC 300 is a benchtop Automatic Measuring System that provides it all — speed, accuracy, ease of use and outstanding value. Built on a solid granite base and Z column Sprint CNC has the stability and accuracy for the most demanding applications. Keep your quality in control with Sprint CNC.

RAM Optical has designed four models of Sprint CNC systems for automatic dimensional measurement through programmed operation of their advanced metrology software. Motorized zoom optics, stage motion, and autofocus are standard features. Advanced patented illumination, auxiliary lenses, and rotary indexer are available options for all systems. The optional Touch Probe is available for Sprint CNC benchtop models.



AutoCheck™ Controller is a self-contained electronics unit with an embedded Pentium® class CPU, disk drive, motion control, video processing, illumination controls, metrology software, and network compatibility.

The front panel controls, angled for convenient access, adjust intensity of multiple light sources, and its membrane switches provide easy DRO operations.

Basic-X™ Metrology Software designed for systems with motorized stages, is full-featured measurement software with intuitive point and click interfaces. It has icon toolboxes that make it simple to do measurements and write part programs.

Emergency Stop

Joystick Control for motorized XYZ stage positioning and focusing

*** Touch Probe**
Includes the probe and interface unit. Change rack is available.

SYSTEM Sprint CNC 200-300 with *Touch Probe & *VectorLight™
ELECTRONICS AutoCheck Controller
SOFTWARE Basic-X

* Optional

PROGRAMMED OPERATION

Sprint CNC 200-500 systems with Basic-X Metrology Software provide high accuracy with excellent repeatability. User created part routines perform automated measurements.

Sprint CNC 200-500 Systems Feature

- Basic-X full-featured metrology software for automatic measurement
- Fiber optic on-axis, LED back light and fiber optic ring illumination
- High resolution color camera & motorized 6.5:1 zoom optics
Magnification ranges from 25X to 135X
- Precision mechanical bearing XYZ stages & 0.5 μm linear scales

Options Include:

- NIST Traceable Glass Calibration Grid
- Rotary indexer allows for part rotation under program control

Sprint CNC 200-300 (benchtop)

Additional Features Include:

- Rock-solid granite base and column

Additional Options Include:

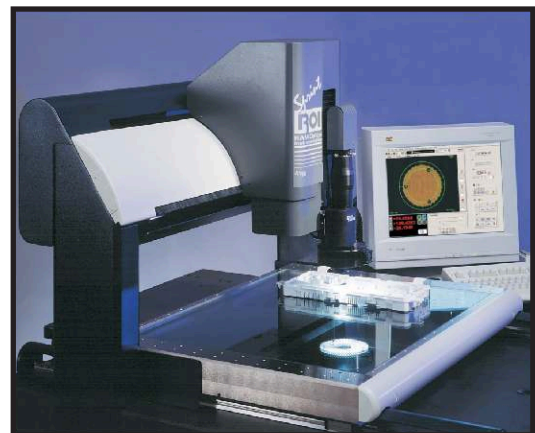
- Patented high intensity white LED VectorLight
- Touch Probe for contact measurement

Sprint CNC 500 (floor model)

Additional Features Include:

- Largest XYZ travel range to accommodate large or grouped parts
- Patented high intensity white LED VectorLight

MODEL	TRAVEL (in.)		
	X	Y	Z
Sprint			
CNC 200	8	6	6
CNC 250	12	6	6
CNC 300	12	12	6
CNC 500	20	18	8



SYSTEM Sprint CNC 500 with VectorLight

RAM Optical has designed six Sprint 100-300 benchtop systems with quality optics, manually-controlled, precision mechanics, and rugged system designs. Sprint systems can be configured for dimensional measurements through programmed operation or manual measurement.



MODEL	TRAVEL (in.)		
	X	Y	Z
Sprint			
100	6	3	5
150	6	6	6
200	8	6	6
250	10	6	6
250+	12	6	6
300	12	12	6

Sprint 100-300 Systems Feature

- Wide variety of travel ranges to accommodate complex parts
- Precision mechanical bearing XYZ stages with 1.0 μm linear scales
- High resolution color camera & 6.5:1 zoom optics
- Fiber optic on-axis, LED back light and fiber optic ring illumination
- Precision adjustment knobs for positioning and focusing
 - Sprint 100 - Coarse and fine XY axes adjustment knobs and front mounted Z axis adjustment
 - Sprint 150-300 - Coarse and fine Z axis adjustment knobs and XY axes with quick release feature

Options Include:

- Patented high intensity white LED VectorLight

Sprint 100-300 (programmed)

Additional Features Include:

- AutoCheck Controller with Gage-X Metrology Software
- Motorized zoom optics
 - Magnification ranges from 25X to 135X
- CompuFocus for optimal focusing

Additional Options Include:

- Rotary indexer allows for part rotation under program control

Sprint 100-300 (manual)

Additional Features Include:

- InSite 2 Controller with built-in firmware and 6.75" color LCD
- Manual zoom optics
 - Magnification ranges from 10X to 75X
- Accurate XY measurements
- Integral DRO with electronic skew adjustment, edge detection indicator, and front panel illumination controls

Additional Options Include:

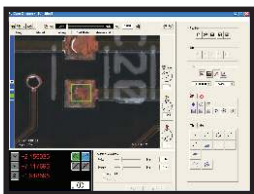
- Motorized zoom optics
- Video Capture Kit
- Z axis measurement

SYSTEM Sprint 100
MATERIAL Cast aluminum base and column

SYSTEM Sprint 150-300
MATERIAL Granite base and column

PROGRAMMED OPERATION

Sprint 100-300 systems with Gage-X Metrology Software provide high accuracy with excellent repeatability. Routines guide system users through the measurement process. With innovative features such as CompuFocus™ for optimal focusing, and innovative graphical tools for moving from feature-to-feature at high magnifications, Gage-X runs on the AutoCheck Controller.



Gage-X™ Metrology Software is designed for systems with manual stages. Interactive program elements reduce human error and ensure proper positioning and focus.

MANUAL MEASUREMENT

Sprint 100-300 systems with InSite 2 Controller simplify interactive measurements. All functions are easily controlled from the InSite 2 Controller front panel.



InSite 2 Controller is a compact unit with all controls on the front panel for easy operation. Designed for visual inspection and manual measurement.

Inspection Systems



SYSTEM Hi-Eye Video Microscope
ELECTRONICS *Digital Crosshair Generator

Hi-Eye Video Microscope

The Hi-Eye™ versatile video microscope is a self-contained unit affixed to a flexible articulating arm that can be easily mounted to any work table. Excellent for inspection and assembly operations.

- Motorized zoom optics
- Autofocus
- High resolution 6.4" color LCD
- Choice of three models



SYSTEM Optical Video Probe
ELECTRONICS InSite 2 Controller

Optical Video Probe (OVP)

The patented OVP™ is designed to mount to Coordinate Measuring Machines (CMMs) and toolmaker's microscopes.

Provides accurate video inspection with zoom for detailed full color images.

- High resolution color camera
- Adapters for most CMM models
- 6.5:1 motorized zoom optics
- VectorLight on-axis & ring LED illuminator



SYSTEM Video Direct Microscope
ELECTRONICS *InSite 2 Controller

Video Direct Microscope (VDM-E/Z)

The VDM-E/Z™ is a compact microscope system that makes high magnification inspection less straining. Great for individual or group inspection training.

- Real-time color imaging on a 13" monitor
- 150W illuminator
- Stable metal stand with small footprint
- Two lens options :
 - Patented Extended Depth of Field (EDF), large working distance, and variable magnification
 - 6.5:1 manual zoom optics

* Optional

Laser Profile Scanners



Cobra 2D with *Video



Cobra 3D Laser Scanner

Cobra™ Laser Scanners

- Non-contact — ideal for fragile or pliable parts
- Two models — high resolution 2 and 3 dimensional profiles
- Precise measurement — Z axis resolution to 5 μinches
- Versatile — use on benchtop, in-line or place directly on part
- Scan-X® Metrology Software with easy-to-use graphical interface
- Video camera option for live view during setup and scanning

Software & System Options

Systems with AutoCheck Controller

Software Package Options

Fitting Software

Choice of powerful 2D software packages that are easy to use, designed for real-time data collection, CAD file comparison and fully automated fitting analysis.

SmartCAD®

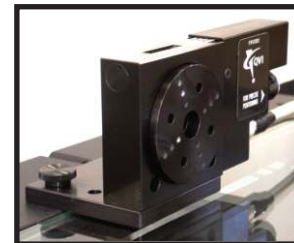
Create automatic measuring routines from CAD files with SmartCAD. It provides a simple interface for associating measurement-specific data such as magnification, lighting, tolerances and image-processing tools to selected features. Also allows setting of measurement order or sequence, optimizing the measurement routine.

SmartReport® Plus

Collects and reports inspection data, providing formatted reports based on runs of one or more parts. Print the data or export it to a database or spreadsheet the way you want it.

QC-Calc™

Fully automatic Statistical Process Control (SPC) program that collects, analyzes and reports inspection data from Basic-X and Gage-X software. Offers real-time plotting functions, statistical charts and custom reporting.



System Option

Miniature Servo Rotary (MSR)

The rotary indexer, MSR is an optional accessory for all systems with AutoCheck electronics. With an MSR indexer, parts may be automatically rotated during the measurement program to present a different view to the system, reducing the need for multiple setups. A faceplate is provided for easy part or fixture mounting.

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