CAMIO8
Multi-sensor CMM software
CAMIO

Proven in the most challenging application environments, CAMIO is the CMM software of choice for many of the world’s largest manufacturers. By leveraging the productivity benefits of CAMIO, manufacturers can focus on accelerating lead times and improving product quality while reducing costs. CAMIO’s interoperability across CMM platforms, sensor technology and manufacturing sites, is a unique advantage which guarantees the longevity of your investment in software and inspection programs for the longer term.
Regardless of whether inspecting stamped, molded or machined parts, CAMIO drives accurate and efficient inspection programs for geometric features or full surface analysis with part-to-CAD comparisons.
FOR A WIDE RANGE OF INDUSTRIES

AEROSPACE
AUTOMOTIVE
ENERGY
PLASTICS
TOOL AND DIE
CONSUMER ELECTRONICS
MICRO-MANUFACTURING
HOUSEHOLD APPLIANCES
MEDICAL
**MULTI-SENSOR METROLOGY**

Do you have the right tools to succeed?

Nikon Metrology multi-sensor technology provides manufacturers with greater measurement flexibility and a better understanding of product conformance while increasing CMM throughput.

**EFFICIENCY**

Optimize CMM cycle times by using the most effective sensor technology.

**FLEXIBILITY**

Measure an extended range of components, features, geometry and materials effortlessly.

**INSIGHT**

Gain a better understanding of product conformance by full 3D part-to-CAD comparison and detailed feature inspection.

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**Touch probe**

Flexible solution with a range of accessories for general inspection.

TP20, TP200

- Standard touch probe

Applications
  - Feature inspection
  - Form measurement (TP200)
  - Internal geometry

**Scanning probe**

High speed feature measurement and profile scanning indexing probe head with stylus lengths up to 400mm and offset styli for difficult to reach features.

SP25M

- High accuracy scanning probe with long stylus capability

Applications
  - Feature scanning
  - Form scanning
  - Internal geometry

**High precision scanning head**

SP80 high precision fixed scanning head with stylus lengths up to 800mm for powertrain applications and large high-precision machined components.
CT Metrology is used in a wide range of industries:
• Automotive
• Aerospace
• Consumer goods
• Medical devices
• Electronics

MULTI-SENSOR METROLOGY

Laser scanner
High speed measurement with interactive 3D visualization of deviation from nominal. Non-contact technology eliminates the measurement errors associated with tactile probing.

InSight L100
The ultimate CMM laser scanner combining productivity and accuracy
Applications
• Form/Surface inspection
• Feature inspection
• Reverse engineering

LC60Dx
Universal line scanner
Applications
• General inspection
• Reverse engineering

LC15Dx
High accuracy line scanner
Applications
• Precision parts
• Small geometry
• Intricate detail

XC65Dx(-LS)
High productivity Cross Scanner
Applications
• Sheet metal feature inspection
• Complex surfaces
• Long stand-off version for difficult-to-reach areas

CAMIO offers true multi-sensor capability, allowing best-practice selection of sensor technology for each task. This flexibility improves the quality of the inspection data and reduces CMM cycle times. The Nikon Metrology CMM controller further enhances the capability with high speed continuous motion laser and probe scanning. As needs change, or new sensor technology is introduced, inspection programs can be easily migrated from one technology to another.
EASING THE WORKLOAD

With its familiar Windows® graphical user interface, CAMIO makes even the most complex inspection task look simple. Innovative workflows assist the user at every stage, from data acquisition to reporting, streamlining the inspection process for maximum efficiency.
WITH A CLICK OF THE MOUSE

1 Select probe

EASE

The graphical probe designer provides an easy way to configure your sensor portfolio, whether it’s a touch probe, scanning probe or laser scanner, the process is always the same.

2 Create inspection program

SPEED

Creating an inspection program is as quick as measuring the initial sample. Whether with or without a CAD model, the process is just the same. CAMIO’s teach-and-learn functionality automatically creates the inspection program at each stage of the process.

3 Prove out

TRUST

With a CAD model, inspection programs can be created and fully proven offline. Any potential collisions are highlighted and corrected offline, saving valuable CMM down-time when proving out new inspection programs.

4 Report

SHARE

Common file formats and direct links to 3rd party software packages provide efficient distribution and sharing of your inspection data with other departments, customers and suppliers.
CAMIO provides a rich programming environment, with intuitive software tools and drag-and-drop functionality for a broad range of metrology applications.

Novice users find the step-through approach to CMM programming particularly easy to master and quickly migrate to the more advanced features of the software. More experienced users will appreciate in the high-level functionality which includes conditional program execution, mathematical functions and configurable Windows® style dialog boxes for operator input.
CAD-based feature inspection

The CAMIO program editor provides an easy to follow iconized view of the inspection program. Editing the program is as simple as double clicking or using drag and drop to re-order the inspection sequence.

Simply clicking on the CAD model initiates a measurement sequence. CAMIO automatically applies the optimum measurement strategy based on the feature and sensor selected. At every stage the user has full control to change any aspect of the inspection.

Offline collision detection

Any potential collisions are highlighted and can be corrected before the first part is measured, saving valuable CMM down-time when proving out new inspection programs.

Productive scanning

Scanning geometric features and complex surfaces is simple using CAMIO. Scan paths that follow the surface shape are created automatically, while simulated point cloud data enables checking part coverage. Scan paths can be fine-tuned interactively to include areas that were missed.
Dependable results when you need them most

CAMIO conforms to the latest international standards for CMM data analysis and tolerancing, ensuring the integrity of your data at every stage of the inspection process. A suite of easy-to-use tools and templates provides endless reporting possibilities for a broad range of applications, with real-time reporting for instant results. An industry-standard database is used to archive all data, with open access for offline analysis and trouble shooting. Common file formats and direct links to 3rd party software packages provide efficient distribution and sharing of data across platforms.
WITH FLEXIBLE REPORTING

Dimensions table
- GD&T annotation
- Datum reference
- Deviation color bar
- Material condition
- Combined reports
- Customizable

CAD compare color map
- Quickly identify surface deviation
- Direct comparison to CAD
- Annotate tolerances and fly-outs
- Large point cloud capability

Profile section
- Create virtual sections
- Tolerance profiles
- Construct features
- Apply GD&T

Graphical form error reporting
Feature forms can be displayed as individual reports with graphic and text information.
CAD model import/export

CAMIO’s industry standard bi-directional CAD interface supports popular native and neutral CAD file formats. CAD models can be used to aid rapid programming and inspection, and to improve the appearance and readability of graphical inspection reports. Measurement data can also be output using the supported CAD file formats to 3rd party software packages for reverse engineering applications.

Full compliance to DMIS standard

CAMIO’s strict adherence to the industry standard for CMM inspection programs, Dimensional Measuring Interface Standard (DMIS), offers users significant benefits while ensuring the longevity of their investment in CMM software and inspections programs. DMIS inspection programs are not bound to any particular CMM software version. This gives the freedom to use existing inspection programs from one software package with another, and to replace or upgrade their CMM software package without the need to modify or re-write existing programs. This is a major advantage to manufacturers with multiple CMMs spread across different sites. When managing inspection programs from a central resource, programs can be fully proven prior to deployment, saving valuable CMM down-time during program prove out.
CAMIO’s automation capability enables your CMM to become part of a fully integrated manufacturing process.

Loading possibilities include
- Manual loading
- Robot handling
- Automated pallet

Part recognition possibilities include
- User selection
- Bar code reader
- Fixture recognition
- Direct I/O
- PLCs

Custom solutions can be engineered around a particular customer requirement to provide a totally integrated solution based on your needs for process optimization.

Statistical Process Control (SPC) reporting
- Average and range charts
- Capability indices $C_p$ and $C_{pk}$
- Run charts
- Pareto analysis