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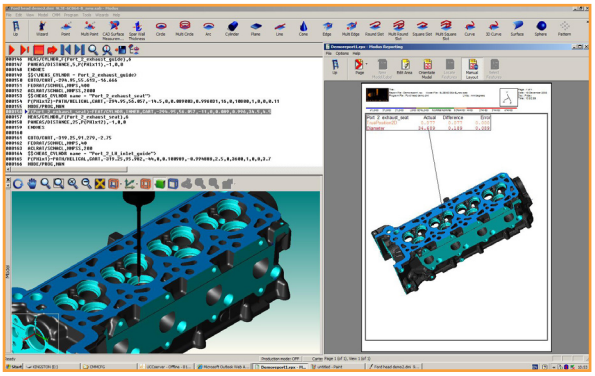
New MODUS™ CMM software supports powerful 5-axis measurement

Powerful new metrology software complements Renishaw's innovative REVO™ 5-axis measuring head and UCC2 universal CMM controller to comprise a 'one stop shop' retrofit offering.

Renishaw is pleased to introduce its new MODUS™ CMM software application, enabling it to offer CMM users a complete retrofit upgrade, supplied and supported by Renishaw. With full support for its entire range of sensors, including the award-winning REVO™, MODUS™ provides a powerful platform for 5-axis measurement. Key features include CAD-driven offline programming with full motion simulation and collision detection, including 5-axis moves; native DMIS support; certified mathematical algorithms; powerful text and graphical reporting; and flexible output of results data. Renishaw's UCC2 universal CMM controller is supported via the I++ DME interface.

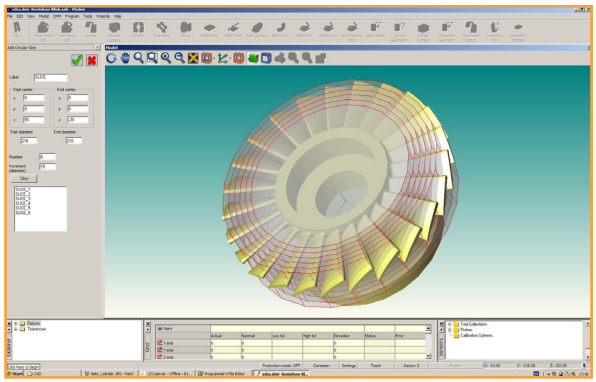
The MODUS™ application is built on the highly respected Metris Camio CMM software. In a recent agreement with Metris BV, Renishaw has acquired a license to the Camio source code. Renishaw has also recruited a team of engineers from Metris to support the future development of its MODUS™ software.



MODUS™ real-time reporting

"Having our own software significantly enhances our retrofit offering, allowing us to complement our existing I++DME interface strategy with a one-stop-shop," commented Ben Taylor, Assistant Chief Executive at Renishaw.

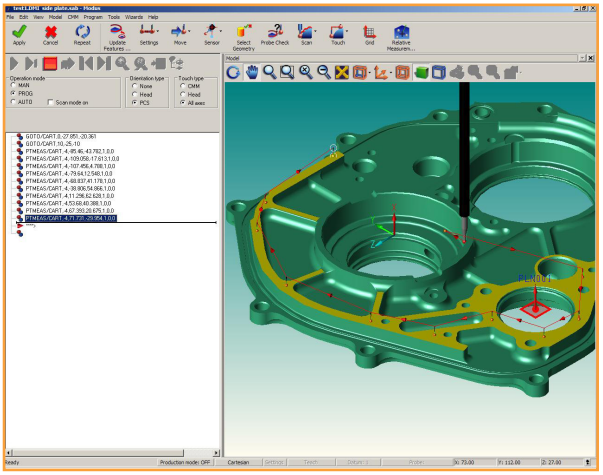
He continued, "With our new team of engineers and our recent investments in software engineering in the UK and India, we now have a top-flight metrology package and the means to develop it. Our strategy is to enhance MODUS™ to keep pace with our forthcoming solutions, including new sensors for the REVO™ platform. This will ensure that MODUS™ users are always amongst the first to benefit from innovations in measurement technology."



MODUS™ screenshot - circular slice

User-friendly programming with full simulation
MODUS™ features a configurable user interface allowing native DMIS programs to be developed offline. Programs can be created directly from CAD with on-screen probe path verification. The CMM environment, the fixture and the location of the part on the machine can all be defined, enabling full motion simulation and crash detection including 5-axis moves. This minimises CMM down-time as programs arrive at the machine ready to run, with little or no prove-out time required.

MODUS™ offers a wide array of programming, measurement, and reporting functionality but, in recognition of the fact that the majority of users use only a subset of the user interface, both the layout and the content can be tailored to suit individual users. Toolbars are fully configurable to ensure only the buttons required are shown and that they are positioned exactly where required. Context-sensitive graphical user instructions support programs in several different ways: keyboard entry, 'teach' from the joystick control or direct from CAD model data.



MODUS ™ probe path simualtion

The program editor supports true native DMIS. It features high level programming commands including variable declaration, logic, macros, intrinsic functions and operator prompts via user-definable dialog boxes. Automated error recovery during program execution is also available.

Extensive CAD compatibility

In addition to the neutral formats of IGES, STEP, Parasolid and VDAFS, MODUS™ features high quality integration with CATIA (V5 and V4), Siemens NX (previously Unigraphics), Pro/E and Solidworks CAD/CAM solutions. The software also includes healing and simplification technology to optimise CAD models. Users can select feature geometries and nominal dimensions from one or more imported CAD models, and compare measured data to CAD nominals.
Product Manufacturing Information (PMI) may also be accessed from CATIA V5, Pro/E and NX models, enabling the use of embedded dimensional and tolerance information which is accessed using the MODUS™ planning solution module. Feature labels are maintained throughout the workflow from CAD to inspection report.

Proven measurement and analysis capability

MODUS™ makes full use of Camio's wide range of feature measurement and construction routines. Features include circles, lines, planes, points, cones, curves and surfaces, plus relative measurement of thin walled parts. There is also support for the construction of features, including intersections and projections. Part location and orientation techniques range from simple 3-2-1 methods to complex freeform and iterative alignments.

Certified feature fitting algorithms include least squares, minimum circumscribed, maximum inscribed and max/min. Filtering of scanned data is also supported for geometric features. Feature form is an intrinsic part of contemporary inspection techniques and MODUS™ rules-based generation of measurement paths for continuous 3-axis and 5-axis contact scanning delivers the form data required to fully analyse complex workpieces.

Flexible reporting

The reporting capability of MODUS™ is extensive, including traditional CMM text reports with comprehensive user-defined formatting. Graphical reporting enables results to be displayed against the CAD model, including whisker charts or 3D form plotting for many features.

Building on a foundation of industry standards, MODUS™ maximises compatibility with a user's existing programs and reports. Results data can be output for use with 3rd party applications in a range of formats including Excel (CSV), ASCII text, DMIS, internet-friendly XML or directly to the Microsoft® SQL Server database. Users may also customise the output file to include parameters such as the part serial number.

Trend data can be displayed against a series of parts in a range of SPC charts. Furthermore, users of the leading Q-DAS SPC package are fully supported with a simple, user-configurable operator's interface from which type 1 & 2 studies can be launched.

Standards-driven and future proof

Renishaw's CMM retrofit solutions are based around industry standards and established technologies, maximising flexibility for users. MODUS™ interfaces with Renishaw's UCC2 universal CMM controller using the I++ DME protocol, which provides a common language for metrology commands. This leaves UCC2 users free to use other I++ DME-compliant metrology applications in the future, rather than being tied into a single proprietary solution.

MODUS™ is a future-proof investment, ensuring guaranteed availability of the latest sensor and controller technology advancements from Renishaw. This will include future sensors for the REVO™ 5-axis measuring head, the first of which will be automated surface finish measurement (available early in 2009).

www.renishaw.com/modus