Improvements
WM | Quartis R2025-2

Update Information

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At a Glance

WM | Quartis R2025-2 brings new tools for **more precise and flexible measuring processes**. **Curves** can be **split** efficiently. **Programmable variables and inputs** enable interactive measurement programs. Extended **temperature compensation** ensures reliable measurement results, especially with **swiveled probe systems** and **rotary table movements**.

WM | Quartis R2025-2 extends **optical measurement** with new functions for **point cloud acquisition** via the **rotary table as the 4th axis**. Three flexible scanning methods enable fast and complete **digitization** of components with **rotation-guided** acquisition - ideal for complex geometries such as **turbine blades**.

WM | Quartis R2025-2 improves **element extraction from point clouds** with noticeably **faster calculations**, new **preview** functions, **material thickness compensation** and **defined strategies** for reproducible results. **Additional calculation methods** are now available for rectangles and slotted holes.

WM | Quartis R2025-2 brings optimizations for point cloud processing, including the **smoothing of point clouds**, individually **adjustable triangulation resolutions**, a **higher scanning frequency** with WM | LS 150 and WPC2050, as well as the **simplified identification of point clouds and polygon nets** - all for even more precise evaluations and more efficient workflows.

WM | Quartis R2025-2 optimizes **work with the rotary table** through automatic **axis alignment** during probe system calibration, **faster rotary table movements** and improvements in **temperature compensation** and **offline programming**.

WM | Quartis R2025-2 supports the **WENZEL WM | RS-T** for precise **roughness measurement** on gear components - including automated probe change via Multiple Probe Changer.

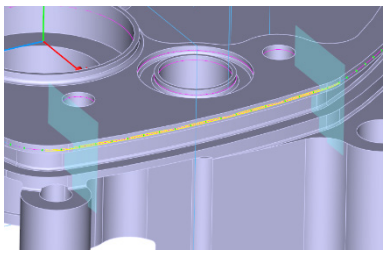
WM | Quartis R2025-2 offers extended possibilities for remote monitoring with the new "**Broadcast MQTT**" interface - for live status data and messages in tools such as **WM | SYS Analyzer**.

WM | Quartis R2025-2 offers **further useful improvements** and enhancements. You can find out more on the following pages.

> **Note:**
>
> Some improvements are not included in the standard product WM | Quartis R2025-2 and require additional, chargeable modules. These are described in the document "Products and Modules WM | Quartis R2025-2".

New Tools for more Precise, Customizable Measurement Processes

Split or Trim Curves Efficiently



The new **"Split"** function in the construction area allows measured curves to be split or trimmed directly in the measurement process.

This offers a clear advantage, especially for curves with different tolerances: the entire curve can be measured in one pass and then split into partial curves.

Your benefit: Simplified handling, faster measurement processes and greater flexibility in evaluation.

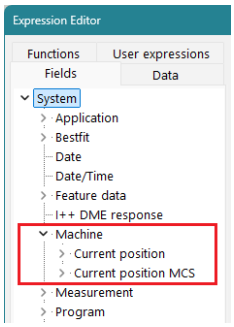
"Variable" and "Input" Program Functions for Greater Flexibility

With the new **"Variable"** and **"Input"** functions, data can be processed in a targeted way within the Quartis measurement program:

- **"Variable"** allows you to define and manage values of various data types during program execution – ideal for automated calculations and as temporary storage.
- **"Input"** builds on this by adding a manual component: users can be prompted to enter values or text interactively during program execution.

Your advantage: More flexibility and interactivity when creating individual measurement programs - ideal for customizable processes and customer-specific requirements.

Use Probe Position and Rotary Table Position in Expression Editor



The expression editor has been expanded: Current **probe and rotary table positions** can now be used directly - either in the active coordinate system or in the machine coordinate system (MCS).

This opens up new possibilities for **specific sequence control in the measuring program**, for example in automated processes: The probe can be automatically moved to a safe parking position before a workpiece change.

Your benefit: More control, more safety - particularly valuable for automated measuring sequences.

Enhanced Workpiece Temperature Compensation

The workpiece temperature compensation has been specifically expanded: **Rotary table movements** and **swiveled probe systems** are now considered more precisely. In addition, the **expansion coefficient** of the **reference sphere** is now automatically taken into account during calibration.

With **swiveled probe systems**, workpiece temperature compensation is now performed more precisely in all swivel positions - for consistent, reliable measurement results.

Even measurements with **different rotary table positions** or with the rotary table as the **measuring 4th axis** are now correctly temperature-corrected.

Your benefit: Increased measuring accuracy – regardless of whether the temperature is measured manually or automatically.

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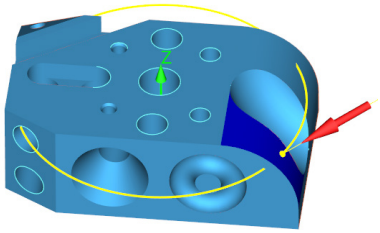
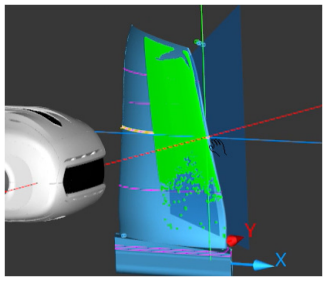
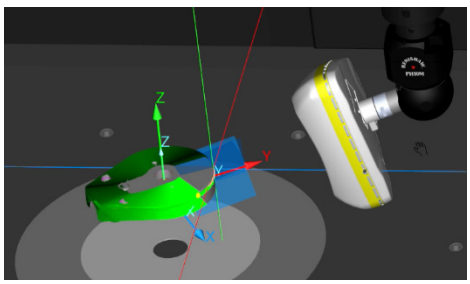
Optical Measurement and Evaluation

Capture Point Clouds with Rotary Table as 4th Axis – Quickly, Completely, Efficiently

Point clouds can now be captured with an **optical line scanner** on measuring devices with a **rotary table** (e.g. WENZEL GT) - the rotary table is used as a **measuring 4th axis**. This enables a particularly efficient and complete capture of components that need to be captured all around.

There are three clever distribution methods to choose from for different applications:

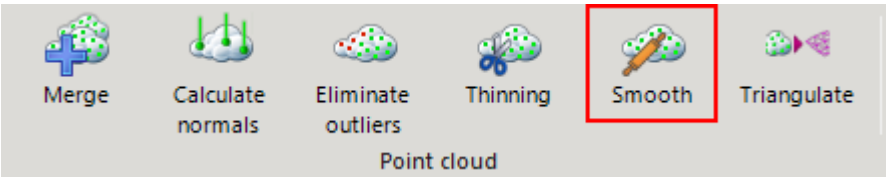
- **"Circle" method** - ideal for rotationally symmetrical parts **without a CAD model**.
- **"Curve tangent"** method - optimum surface detection for **turbine blades** or components with critical geometries where a **vertical viewing direction** is required for triangulation so that **no shadowing** occurs and the entire component is detected.
- **"Curve" method** - for simple geometries where neither lateral movement nor vertical alignment of the scanner is required.

Your advantage: Maximum laser line coverage in a short time - perfect for demanding scans around rotating parts.

Smoothing Point Clouds - Better Results with Less Effort

With the new "**Smooth point cloud**" function, measuring points in a point cloud can be specifically post-processed. The result: **smoother, more precise point clouds** - ideal for downstream evaluations and visualizations.



Your benefits at a glance:

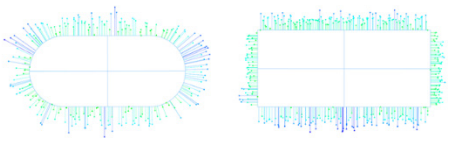
- **Reduced sensor noise** – for cleaner data and more reliable evaluations
- **Improved triangulation** – smoother mesh surfaces for more precise workpiece visualization
- **Less computing effort** – efficient processing thanks to optimized point clouds

Conclusion: Less noise, better meshes - with minimal processing effort.

New Calculation Methods for Rectangular and Slots - Better Extract Results

The **Chebyshev**, **Minimum circumscribed** and **Maximum inscribed** methods are now available for rectangles and slots. They can be used for **tactile measurement**, **point cloud extraction** and **construction**.

Especially when extracting from point clouds, the new methods deliver **more precise results for length and width**.



Enhancements in Element Extraction from Point Clouds

Noticeably faster: Extraction is now up to six times faster – a major time saver, especially for large extraction programs.

Compensate for material thickness: A material thickness can now be taken into account – ideal when no volume model is available or when nominal elements are defined on the "opposite side."

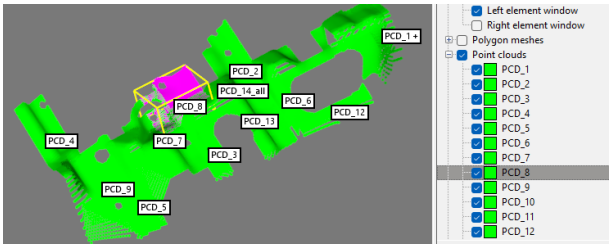
Preview available: The new "Calculate" function displays the extracted element directly in the graphic – making it easier to adjust parameters before finalizing the extraction.

Reproducible extraction: When creating programs from element and characteristic lists, fixed extraction strategies ensure consistent results – independent of the current settings.

Program sentences of type "Edge": These can now be generated from an element and characteristic list – including support for BMWIpp and Daimler/Audi/VW formats.

Easy Highlighting and Identification of Point Clouds and Polygon Meshes

Point clouds and polygon meshes can now be identified more easily: selecting them in the **graphics window** or in the **display options** highlights the element in color and shows a **bounding box**. The corresponding **ID** can be displayed via the **info box** – clicking it will highlight the element.



Further Improvements in Optical Measurement and Evaluation

Triangulation with user-defined resolution: The resolution can now be set individually during CAD import – regardless of model size.

Higher scan frequency with WM | LS 150 and WPC2050: This combination now supports a higher scan frequency – enabling finer point clouds even at high speeds.

Measure point cloud with distribution via HT400: Pre-probing can now be defined directly via the HT400 – making operation easier and measurement faster.

Copy measurement – including polygon meshes, point clouds, and comparisons: When copying in the database, these contents can now also be selectively included.

Optimizations for Working with the Rotary Table

Probe System Calibration Aligned with the Rotary Table Axis

When calibrating probe systems, the **probe position** is now automatically aligned with the **rotary table axis** – increasing **measurement accuracy** when using the rotary table as a 4th measuring axis.

This is especially beneficial on a **WENZEL GT**, where the reference sphere is mounted on the rotary table: it no longer needs to be manually repositioned and calibrated before each measurement. This **saves time** and prevents measurement errors.

Faster and More Precise Measurement with the Rotary Table

Optimized interpolation and control enable **higher scan speeds** when measuring with the rotary table – especially along circular paths, but also on curves. **Positioning** now always uses **full rotation speed** – regardless of the settings for the machine axes.

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Further Improvements for Working with the Rotary Table

Offline programming with rotary table: The workpiece can now also be correctly positioned offline, even when the rotary table coordinate system is active – enabling offline programming for measuring machines with a rotary table, such as the WENZEL GT.

Improved CMM temperature compensation: More accurate measurements thanks to optimized calculation algorithms with flexible starting positions, e.g., at the center of the rotary table.

Optimized rotary table home offset parameters for WPC2040 and WPC2050: Simplify operation, increase precision, and ensure reliable positioning.

WENZEL WM | RS-T for Roughness Measurement on Gear Parts

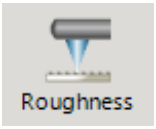
The WENZEL WM|RS-T adds **surface roughness** and **waviness** measurement capabilities to WENZEL coordinate measuring machines.

The sensor is based on a **cantilevered roughness measurement system** with its own measuring axis, allowing the machine to remain stationary during the measurement.

The **roughness stylus** can be precisely aligned using the integrated R and T axes as well as the rotary table axis – all controlled via **WM|Gear**.

In parallel, the **Multiple Probe Changer** has been integrated, enabling automated probe changes between the WM|RS-T and other probe systems using the Renishaw Autojoint interface.

A dedicated **"Roughness" probe mode** is available for roughness measurement – similar to the well-known Renishaw REVO SFP roughness sensor.



Further Highlights for Maximum Productivity

"Broadcast MQTT" Interface for Remote Monitoring

With the new **"Broadcast MQTT"** interface, WM | Quartis can be **monitored** permanently and conveniently **from a distance**.

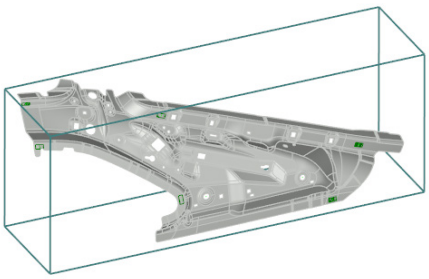
This enables the **WM | SYS Analyzer** or an individual software solution, for example, to receive **current status data and messages**. This allows users to keep an eye on the status of the measuring software and the connected devices at all times.

In addition, the established automation interface "**Remote control MQTT**" remains available, with which WM | Quartis can also be actively **controlled remotely**.

Easy Identification of CAD Models

CAD models can now be identified more easily in WM | Quartis: When selecting, the relevant model is highlighted in the graphics window by a **bounding box** and marked in the **display options**.

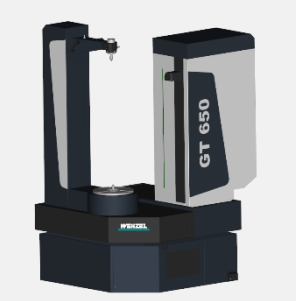
This is particularly helpful when importing several models of an **assembly**, as is common in **car body construction**, for example.



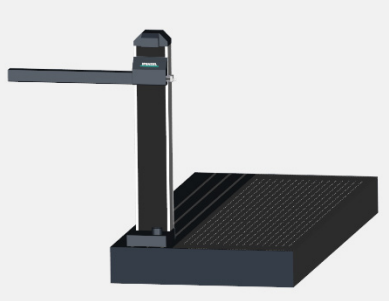
More Choice in the 3D Measuring Device Display

There are three more models of **WENZEL measuring machines** to choose from - for a realistic **visualization** of the measuring environment, especially for **offline programming**.

WENZEL GT 650 (Z=650, G=900)



WENZEL GT 650 (Z=1000, G=1200)



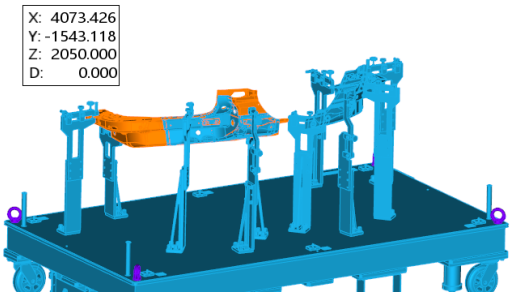
WENZEL RAplus 17.5 21 +X -Y (5500)

Open Database: The Most Recent Measurement is Loaded Automatically

The **most recent measurement** in workpiece 1 is now **loaded** automatically when an existing **database is opened** - instead of measurement 1 as before. This makes it easier to work with **workpiece-related databases** where the measurement number is incremented in the program.

Performance Optimization for CAD Manipulations

The display of **mouse pointer coordinates** is automatically deactivated during CAD manipulations - for smoother rotating, moving and scaling, especially with large models.



Adjustable Size of Auxiliary Element Names and Point Numbers

The names of **auxiliary elements** and **point numbers** displayed in the **graphic** can now be scaled individually. This allows the display to be optimally adapted to the **screen resolution** and **personal preferences**.

Input Fields: New with Extended Keyboard Shortcuts

The common **keyboard shortcuts** Ctrl-C, Ctrl-V, Ctrl-X and Ctrl-A now also work in input fields - for **more efficient working without a mouse**.

DMIS: Export Element Points as a Text File

With the new **DMESW command** 'EXPORTELEMENTPOINTS', **element points** can be exported directly to a **text file** - ideal **for further processing or documentation**.

Optimized Polling of the Temperature Sensors Connected to the WPC T-Bus

The **temperature sensors** are now polled specifically and less frequently in order to **improve scanning performance** - especially with **optical sensors**. As a result, the scanning frequency remains stable and measurement data is not lost.

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