RENISHAW
apply innovation™

Next generation probing systems for machine tools

QE series radio transmission

Introducing the QE series

The QE series comprises an ultra-compact RMI-QE radio interface with a communication protocol future-proofed to support a new generation of Renishaw sensors and smart devices.

In addition, major updates to the complete range of market-leading radio transmission probes deliver improved battery life, simplified set-up and remote diagnostics.

RMI-QE radio interface

A combined transmitter, receiver and interface unit that enables individual radio turn-on and operation of up to four separate Renishaw radio probes (see page 8).

Solutions for tool measurement and broken tool detection

The RTS (Radio Tool Setter) enables broken tool detection and rapid measurement of tool length and diameter on a wide range of tools (see page 15).

Solutions for workpiece set-up and inspection

A range of standard-accuracy, high-accuracy and modular touch-trigger probes for automated workpiece set-up and inspection (see pages 10 to 14).

The Productive Process Pyramid™

Tackle process variation at source and reap the rewards

The higher the degree of human involvement in the manufacturing process, the higher the risk for error. Automated in-process measurement using Renishaw probes can help eliminate the risk. Renishaw's QE series radio transmission probes can facilitate the following measures for enhanced management of your production, leading to an increase in your profits.

For further details regarding the benefits of all levels of process control within the Productive Process Pyramid™, visit **www.renishaw.com/processcontrol**.

Post-process monitoring

Obtain information about a part or process once it is complete using Renishaw machine tool probes. By measuring on the machine tool, manufacturing processes can be streamlined.

Determine whether a workpiece conforms to specification by gathering measurement results before the part is removed from the fixture on the machine. Use on-machine measurement data to identify ways of reducing process variation by analysing the variation in part dimensions, thereby increasing yield and quality.

In-process control

Renishaw radio probes allow processes to adapt to and adjust for inherent variation during machining. Compensate for tool wear, thermal growth and part deflection by updating machine parameters to adjust the cutting process mid cycle.

Through in-cycle process-adjustment, non-productive time and scrap can be reduced; increasing productivity and profits.

Process setting

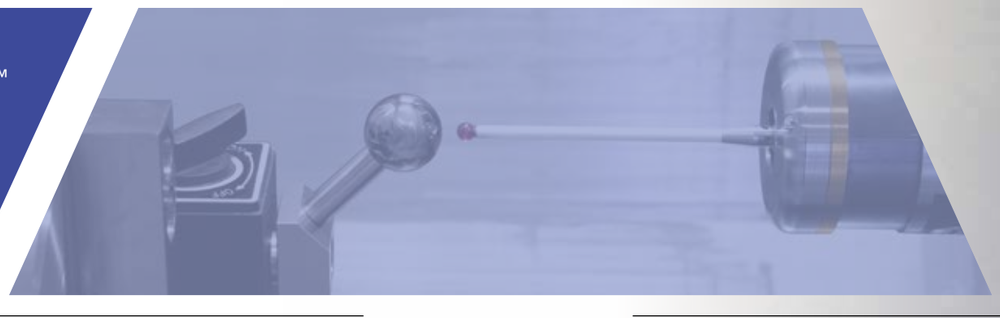
Use your Renishaw radio probe to set a machining process just before it starts, to ensure it runs smoothly. Automatic process setting enables fast job set-up, significant quality improvements and substantial scrap reduction.

A probe can help you eliminate costly fixtures and reduce manual settling errors. Machine offsets can be automatically updated for accurate positioning and alignment. Through the introduction of probing, new processes can be introduced, quickly, allowing users to respond to new customer requests.

Process foundation

With AxiSet™ Check-Up software, Renishaw radio probes with RENGAGE™ technology can be used to analyse the performance of machine tool rotary axes and identify problems caused by incorrect machine set-up, collisions or wear.

Use the probe to increase confidence in your machining process before cutting starts, reducing unproductive time and scrap.



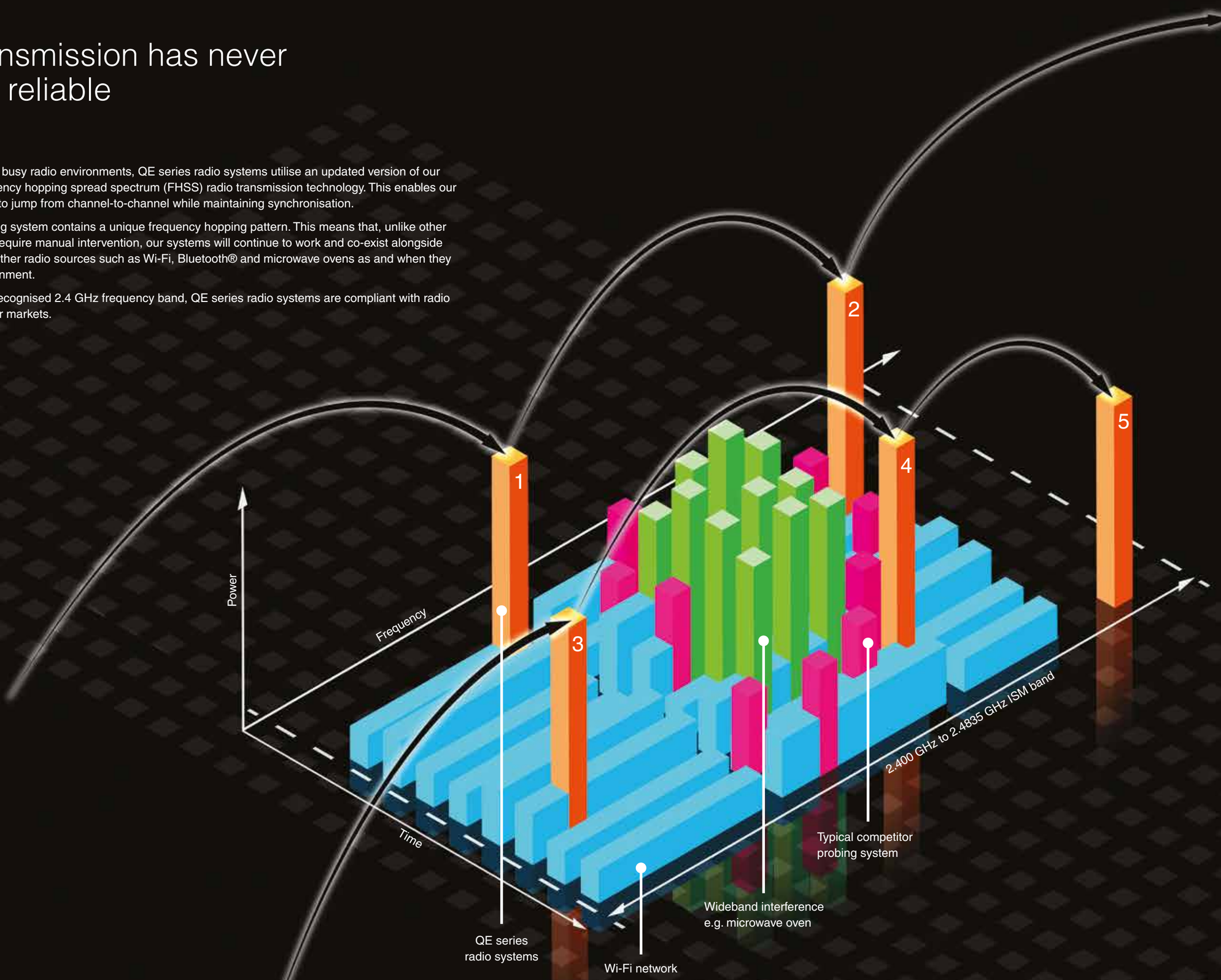
> **We are very happy with the accuracy of the RMP600 and, in particular, the consequent reduction in scrap parts further down the production line. These are large, expensive components and we can use the probe to identify and avoid errors.**
>
> Tods Composite Solutions Ltd (UK)

Data transmission has never been so reliable

Robust and reliable in busy radio environments, QE series radio systems utilise an updated version of our industry-proven frequency hopping spread spectrum (FHSS) radio transmission technology. This enables our probes and receivers to jump from channel-to-channel while maintaining synchronisation.

Each individual probing system contains a unique frequency hopping pattern. This means that, unlike other protocols which may require manual intervention, our systems will continue to work and co-exist alongside other probes as well other radio sources such as Wi-Fi, Bluetooth® and microwave ovens as and when they enter the same environment.

Operating within the recognised 2.4 GHz frequency band, QE series radio systems are compliant with radio regulations in all major markets.



RMI-QE – A connected interface for a digital future

Situated inside the machining environment, the RMI-QE is a combined transmitter, receiver and interface unit that converts probe signal information into a form compatible with machine tool controllers.

Its ultra-compact design is over 60% smaller than it's predecessor, the RMI-Q, enabling a multitude of flexible mounting options. An updated communication protocol ensures it is future-proofed to support a new generation of Renishaw sensors and smart devices.

Product highlights

- Robust long-range communication of 15 m
- Suitable for applications that cannot guarantee line-of-sight between the probe and interface
- Combine up to four separate tool setting probes, spindle probes, or a combination of both, with a single interface

Flexible mounting options

Sub-mount

Front mount, rear exit

Front mount, bottom exit

Bracket mounted

High-accuracy solutions for workpiece set-up and inspection

Engineered for over a decade and patented by Renishaw, RENGAGE™ technology combines proven silicon strain gauge technology and ultra-compact electronics to deliver unparalleled 3D measurement performance and capability.

Excelling in the measurement of complex 3D shapes and contours, RMP400 and RMP600 probes with RENGAGE technology are ideally suited to 5-axis machining applications.

Product highlights

- 0.25 µm 2σ repeatability* – High precision components with tight tolerances can be measured with greater repeatability
- ±0.25 µm 2D and ±1.00 µm 3D form error* – Low pre-travel variation in all directions enables 3D features to be measured more accurately
- Low trigger force – Helps eliminate surface and form damage when inspecting soft metal components
- High accuracy measurement – Even with very small, long or custom styli configurations

* using 50 mm stylus length

For more information regarding the unrivalled 3D performance of probes with RENGAGE technology, visit **www.renishaw.com/rengage**

Industry-leading battery life

Electronics and radio transmission updates to QE series probes deliver an increase in battery life of up to 400%, which when used with the RMI-QE interface, offers industry-leading battery life of up to 5 years based on typical usage.

This improvement also reduces the amount of batteries required during the product's lifespan, minimising its environmental impact.

Standard-accuracy solutions for workpiece set-up and inspection

Proven over four decades, the kinematic resistive design featured in our RMP40, RLP40 and RMP60 probes has been the main choice for the majority of machine builders and end users to ensure accuracy and reliability.

The ability of the probe mechanism to reseat after triggering to within 1 µm is fundamental for repeatability and good metrology.

From simple edge detection through to part alignment and on-machine gauging, this technology is suitable for all sizes and types of machine tools from machining centres to lathes to multi-tasking machines.

For more information regarding our standard-accuracy probing range, visit **www.renishaw.com/kinematic**

> **Renishaw has an excellent reputation in manufacturing industries, and also provides service for different industries, so it doesn't just offer a product or a solution, but also shares with us its experience, expertise and the industry's best practices.**
>
> **Renishaw is also meticulous in terms of its technical support, the Renishaw team reacts quickly to solve problems; this is particularly impressive to us.**
>
> SuperAlloy Industrial Company Ltd. (Taiwan)

Radio modular systems

RMP40M and RMP60M modular systems enable inspection of hard-to-reach features which might be inaccessible with a standard probe.

Renishaw has a comprehensive range of adaptors, extensions and stylus configurations to tackle even the most demanding probing applications.

For more information regarding our range of modular probing systems, visit **www.renishaw.com/modular**

Radio tool setter

RTS (Radio Tool Setter) is suitable for use on machining centres of all sizes, or in applications where line-of-sight between the tool setter and receiver is difficult to achieve.

The system enables broken tool detection and rapid measurement of tool length and diameter on a wide range of tools.

The cable-free design enables the RTS to be used as a standalone or as part of a multi-probe system allowing use in a wide range of applications.

To learn more about the RTS, visit **www.renishaw.com/rts**

Software that makes probing simple

Easy-to-use probes

Renishaw is committed to ensuring its probes are easy to use.
A comprehensive range of macro cycles and machine tool apps allows for quick and intuitive programming and reporting of measurement cycles, as well as machine performance monitoring.

Inspection Plus

This industry-standard G-code software package forms the basis of all Renishaw machine tool apps. Running on the machine tool, the macros measure a comprehensive range of features that can be found on machine-mounted work pieces.

Program either by editing G-code at the machine, or by using one of the intuitive machine tool apps to aid creation of measurement cycles.

To learn more about our extensive range of macro cycles, visit **www.renishaw.com/inspectionplus**

GoProbe

The GoProbe smartphone app creates a probing routine with just a few quick taps. Simply select the required cycle and populate the data entry fields. The result is a single-line command that is manually entered into the CNC control.

To learn more about this simple smartphone app, visit **www.renishaw.com/goprobe**

AxiSet™ Check-Up

AxiSet™ Check-Up provides users of multi-axis machines with a fast and accurate health check of rotary axis pivot points. Alignment and positioning performance checks are carried out rapidly, using macro probing software and a dedicated calibration artefact, to benchmark and monitor machine performance over time.

To learn more about AxiSet Check-Up, visit **www.renishaw.com/axiset**

Set and Inspect

Set and Inspect is a simple, intuitive, on-machine probing app to easily create probing routines. These routines can be manually run, run as single cycles or executed as fully automated probing routines. Set and Inspect can upload probing routines to the CNC control automatically.

To learn more about intuitive programming using Set and Inspect, visit **www.renishaw.com/setandinspect**

Reporter

Reporter is an app designed to display component measurement data and production trends in a quick and easy way. View live and historical measurement results from Set and Inspect-generated programs as well as Inspection Plus measurement routines. The app is installed onto a Windows-based CNC control or a Windows tablet connected to the control via Ethernet.

To learn more about viewing measurement results using Reporter, visit **www.renishaw.com/reporter**

Probe Setup app

The Probe Setup app enables probe settings to be configured using a smartphone. Selectable options displayed on the smartphone screen are transferred to the probe through a two-way communication.

QE series probes have been enhanced with Opti-Logic™ technology

Accessed via the new Probe Setup app, Opti-Logic™ technology enables probe settings to be configured using a smartphone.

Selectable options displayed on the smartphone screen are transferred to the probe through a two-way communication, using pulses of light, to significantly simplify the configuration process.

The easy-to-use Opti-Logic technique provides significant user benefits, especially in situations where multiple probes require configuration at the same time.

Download on the App Store

GET IT ON Google Play

“The Renishaw RMP60 system has shortened make-ready time dramatically and brought guaranteed precision and quality control to the chassis production process, whilst all but eliminating the possibility of costly errors.

Our engineers were initially quite concerned about reaching all the areas on the chassis that we need to machine. But, because it uses radio transmission, the Renishaw probe makes part access much easier.”

JCB (UK)

Probing pays with Renishaw

Optimise your cutting process

Ensure parts are machined “right first time”.

Reduce scrap and rework

Set tools up to ten times faster than when using manual methods.

Save time and money

Produce more parts reliably and accurately.

The Renishaw advantage

At Renishaw, we enjoy an excellent reputation for offering strong support to our customers through a network of over 70 service and support offices worldwide.

Technical assistance

We supply technical assistance to all our global customers.

Support and upgrades

We provide a variety of support agreements bespoke to your individual needs.

Training

We offer standard and bespoke training courses to meet your requirements.

Spares and accessories

Buy spares and accessories online or obtain quotes for Renishaw parts 24/7.

RENISHAW
apply innovation™

Applying innovation since 1973

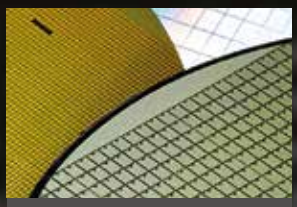
Renishaw is one of the world's leading engineering and scientific technology companies, with expertise in precision measurement and healthcare.

Our worldwide network of subsidiary companies and distributors provides dedicated global customer support, wherever you are.

Our principal markets include:


Aerospace


Automotive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Part no.: H-2000-3891-01-A