

# RMP600 high accuracy machine probe

## An unrivalled combination of flexibility and accuracy

The RMP600 is Renishaw's latest addition to its range of spindle probes for inspection, successfully combining patented **RENGAGE™** strain gauge technology with the unique frequency hopping radio transmission system from the RMP60.

These unparalleled features make the RMP600 the most **flexible** and **high precision** machine tool probe in the world.

**RENGAGE™** technology, the combination of a patented sensing mechanism and new electronics processing, delivers sub-micron **3D performance** to allow probing of complex geometry. It achieves this with no compromises in terms of overall robustness; the resistance to shock is as high with this very sensitive probe as with Renishaw's other market leading probes.

The RMP600 is only the second probe in the world to use frequency hopping spread spectrum (FHSS) transmission; the first being the extremely successful RMP60.

Unlike conventional radio transmissions, the RMP600's transmission system does not use a dedicated radio channel. Instead, the probe and receiver 'hop' together through a sequence of frequencies, enabling multiple probe systems and other industrial equipment to operate in confidence. Paired with a RMI receiver, the RMP600 signals are transmitted over long distances with a negligible chance of interference.

The 2.4 GHz frequency band is compliant with radio regulations in the EU and other countries including USA, Japan, Canada, Switzerland, Australia, New Zealand, Taiwan, India, Indonesia, South Korea, Malaysia, Singapore and China.

### Key benefits

#### Simple set up

Unlike fixed frequency systems, with the RMP600 there is no need to allocate a specific radio channel. Once installed, reliable communications are assured within the industrial environment.

#### Compact and robust

The RMP600 is ideal for machines of all sizes and can access surfaces cut with short tools. Its robust stainless steel body makes it suited to the harshest machine environments.

#### Ideal for retrofit

The RMP600 has the same functionality and practicality as the RMP60. The RMI (a combined antenna and interface) can be positioned anywhere near the machine, resulting in a fast installation. The RMP600 system is ideal for retrofitting to machines with no previous probing or as an upgrade.

### Innovations

#### RENGAGE™ technology

Using extremely accurate strain gauge technology results in less bending of the stylus, less pretravel, and greater accuracy. Additional benefits of this are;

- Increased stylus lengths can be supported without a significant decrease in probe performance.
- Excellent 3D performance which allows probing of contoured surfaces whilst maintaining very high accuracy.

#### Frequency hopping spread spectrum transmission

FHSS transmission for probes means that the RMP600 and RMI hop frequencies together to provide reliable communications. Radio "turn on" is available via an M-code signal.

#### Multiple probe mode

Multiple probe mode is available on RMP600 to allow the use of many different probes with the same RMI receiver. \*

\* Only spin or shank on/off in multiple probe mode.



## Specification - RMP600 probe

<b>Principal applications</b>	Workpiece measurement and job set-up on medium to large horizontal, vertical and gantry machining centres, 5 axis machines, twin spindle machines and vertical turret lathes
<b>Dimensions</b>	Length: 76 mm (2.99 in) Diameter: 63 mm (2.48 in)
<b>Weight (without shank in g)</b>	<b>with batteries</b> <b>without batteries</b> 1010 g (35.65 oz)    940 g (33.18 oz)
<b>Territory</b>	EU and countries including the USA, Japan, Canada, Switzerland, Australia, New Zealand, Taiwan, India, Indonesia, South Korea, Malaysia, Singapore and China.
<b>Transmission type</b>	Frequency hopping spread spectrum radio (FHSS)
<b>Radio frequency</b>	2400 - 2483.5 MHz
<b>Switch on methods</b>	Radio M code, spin on or shank switch
<b>Switch off methods</b>	Radio M code, timer, spin off or shank switch
<b>Operating range</b>	Up to 15 m (49.2 ft)
<b>Shanks</b>	Various
<b>Interface/receiver</b>	RMI combined interface and receiver unit
<b>Sense directions</b>	Omni-directional: ± X, ± Y, +Z
<b>Uni-directional repeatability</b>	0.25 µm (10 µin) 2 sigma – 50 mm stylus length* 0.35 µm (14 µin) 2 sigma – 100 mm stylus length
<b>2D lobing in X, Y</b>	± 0.25 µm (10 µin) 2 sigma – 50 mm stylus length* ± 0.25 µm (10 µin) 2 sigma – 100 mm stylus length
<b>3D Lobing in X, Y, Z</b>	± 1.00 µm (40 µin) 2 sigma – 50 mm stylus length* ± 1.75 µm (70 µin) 2 sigma – 100 mm stylus length
<b>Stylus trigger force**</b>	
XY plane	0.2 N, 20 gf (0.72 ozf) typical minimum
+ Z direction	1.9 N, 193 gf (6.83 ozf) typical minimum
<b>Stylus overtravel force**</b>	
XY plane	2.8 N, 285 gf (10.07 ozf) typical minimum §
+Z direction	9.8 N, 999 gf (35.25 ozf) typical minimum †
<b>Probing speed (minimum)</b>	3 mm/min (0.12 in/min) with Auto-reset
<b>Spindle speed (maximum)</b>	1000 rev/min
<b>Stylus overtravel</b>	
XY plane	± 15°
+ Z direction	11 mm (0.43 in)
<b>Battery type</b>	2 x AA 1.5 V alkaline or 3.6 V Lithium Thionyl Chloride
<b>Battery life (using LTC)</b>	
stand by (radio)	260 days
5% usage	120 days
continuous life	230 hours
<b>Sealing</b>	IPX8 (EN/IEC60529)

\* Performance specification is for a test velocity of 240 mm/min (9.45 in/min) with a 50 mm carbon fibre stylus. Test velocity does not constrain performance in application.

\*\* The stylus trigger force is the force exerted on the component when the probe triggers. However, the maximum force applied to the component will occur after the trigger point and will be greater than the trigger force. The magnitude depends on a number of factors affecting probe overtravel including measuring speed and machine deceleration. If the forces applied to the component are critical, contact Renishaw for further information.

§ Stylus overtravel force in XY plane occurs 80 µm after the trigger point and rises by 0.35 N/mm, 36 gf/mm (32 oz/in) until the machine tool stops (in the high force direction and using a 50 mm carbon fibre stylus).

† Stylus overtravel force in + Z direction occurs 7 µm to 8 µm after the trigger point and rises by 1.5 N/mm, 153 gf/mm (137 oz/in) until the machine tool stops.

## More information

Details of the RMP600, RMI and accessories can be found at  
[www.renishaw.com/RMP600](http://www.renishaw.com/RMP600)

**For worldwide contact details please visit our main website at**  
[www.renishaw.com/contact](http://www.renishaw.com/contact)



RMP600 probe



RMP600 probe inspecting a component, with RMI receiver / interface in the background

