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RCS R-PK1 radio robot probe

Designed for industrial automation

The RCS P-series R-PK1 is a radio transmission probe designed for use with industrial robots. Built utilising proven Renishaw metrology expertise, the robust RCS R-PK1 offers a reliable wireless connection that can be easily mounted alongside any end-of-arm robot tooling, including spindles, grippers, welding torches, and spray guns.

The RCS R-PK1 enables precise alignment of part frames allowing you to set up and recover robot cells efficiently and reliably. There are two simple mounting options; the RCS R-PK1 F ISO bracket mounting option and the RCS R-PK1 S with shank adaptor for spindles. This comprehensive wireless probe offers exceptional battery life in a compact, kinematic design.

Ensure a perfect part every time with routines for in-process control and part frame alignment across a range of robot operations. Enhance robot applications, establish high levels of accuracy, reduce inefficient manual intervention, and improve productivity within any standard robot cell.

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Features and benefits

- **Increase throughput** — removes the need for manual robot reteaching after cell relocation, maintenance, or collision, resulting in less robot downtime.
- **Radio transmission** — delivers interference-free transmission through secure frequency-hopping spread spectrum technology. Globally recognised 2.4 GHz waveband compliant with radio regulations in all major markets.
- **Easy mounting** — easy to set up, reliable connection featuring a direct robot mount with an ISO 9409 bracket or shank mount for spindle fixtures.
- **Robot specific** — Renishaw's first line of probes designed for use on robots, suitable for harsh environments and conforming to IPX8 rating.
- **Reduce waste** — calibrated probes produce more accurate product resulting in less waste and support lean manufacturing.
- **Custom macros** — pairs with a Renishaw RCS RPU which uses custom macros to perform highly accurate routines for probe and robot calibration, including easy part alignment.

Specifications

Recommended styli		M4 50 mm to 100 mm stylus. Material break stem is advised.
Weight	**With bracket mount**	RCS R-PK1 F: 490.8 g
	With shank mount	RCS R-PK1 S: 445.3 g
Transmission type		Frequency-hopping spread spectrum (FHSS) radio.
Radio frequency		2,400 MHz to 2,483.5 MHz
Switch-on methods		Radio digital output, spin.
Switch-off methods		Radio digital output, spin, timeout.
Spindle speed (maximum)		1,000 r/min
Operating range		Up to 15 m (49.2 ft)
Receiver/interface		RMI QE combined antenna, interface and receiver unit.
Sense directions		Omni-directional ±X, ±Y, +Z
Unidirectional repeatability maximum 2σ value in any direction		1.00 um (40 uin) 2σ
Stylus trigger force	**Radial low force**	0.50 N, 51 gf (1.80 ozf)
	Radial high force	0.90 N, 92 gf (3.24 ozf)
	Axial direction	5.85 N, 597 gf (21.04 ozf)
Stylus overtravel limits radial plane		±12.5°
Stylus overtravel limits axial plane		6 mm (0.24 in)
Environment	**IP rating**	IPX8, BS EN 60529:1992+A2:2013
	IK rating (RMP40) (typical)	IK01, BS EN 62262:2002+A1:2021 [for glass window]
	Storage temperature	–25 °C to +70 °C (–13 °F to +158 °F)
	Operating temperature	+5 °C to +55 °C (+41 °F to +131 °F)

Mounting options



ISO bracket



Shank

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