

SP80 ultra-high accuracy scanning probe

Class-leading performance, with flexible use of styli

The SP80 is a quill-mounted scanning probe that uses digital scale and readhead technology, plus Renishaw's innovative isolated optical metrology principles, to provide exceptional scanning performance, even with long styli.

It is able to reach deep into parts by carrying styli up to 800 mm long and 500 g mass, including star configurations which do not require counterbalancing. Renishaw's M5 styli products are designed to complement SP80 and ensure peak performance.

Detachable stylus holders permit rapid and repeatable interchange between stylus configurations, thus eliminating re-calibration, maximising productivity and permitting optimum solutions to match the application.

A simple and robust passive design, with no internal motors to generate heat or reliability issues, avoids unnecessary system complexity.

Key benefits

Long stylus carrying capability - with high accuracy

The combination of long stylus reach with maintained high-accuracy performance makes SP80 the first-choice scanning probe for many applications.

Rapid stylus interchange

Interchange of the stylus holders (SH80) can be automated for optimised productivity by using a rack system comprising of stylus change ports (SCP80) mounted to Renishaw's modular rack system (MRS).

Low cost of ownership

SP80's system modularity enables expansion as required. Robust design promotes long working life but should anything go wrong, Renishaw's rapid service/exchange program minimises downtime.



Innovations

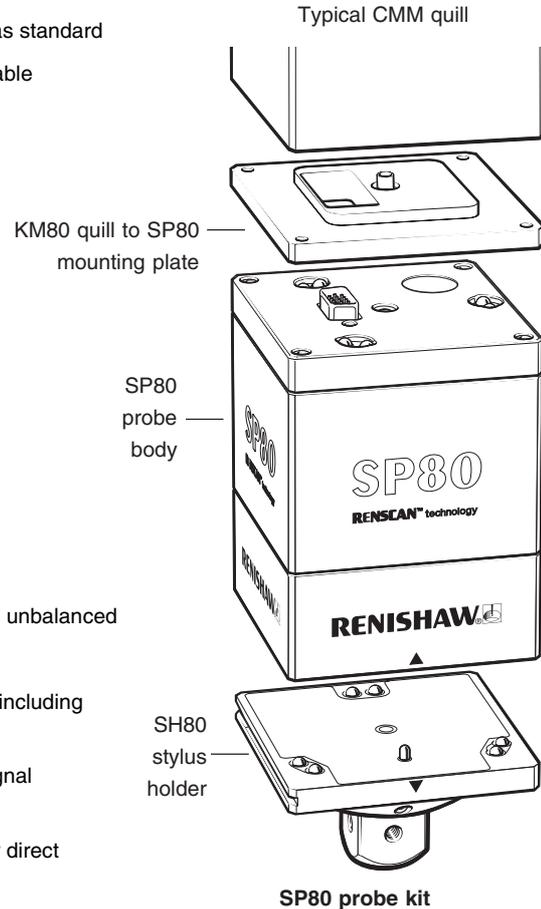
Isolated optical metrology

SP80 directly measures the deflection of the whole mechanism, thus providing outstandingly accurate position sensing. The isolated optical metrology system can detect sources of variable error such as thermal and dynamic effects. By contrast, probes with displacement sensors mounted to stacked axes suffer from increased dynamic latency. This is due to the requirement of any stylus deflection to move a greater mass before transduction in all 3 axes has taken place.

Isolated optical metrology can be explained as a feature of the transducer system. The readheads for each axis are fixed to the body of the probe, and measure the deflection in each direction. Any inter-axis movement caused by the arc motion of each pair of parallel-acting springs are directly measured by the sensor system. The squareness and straightness of the SP80's axes are, therefore, not derived from the mechanism, but optically from the scale cube itself.

Specification

Attributes / orientation	3 axis measurement / vertical
Size	80 mm (3.15 in) square x 150 mm (5.90 in) long – including SH80
Quill mounting	80 mm (3.15 in) square KM80 mount as standard Alternative shank mount (SM80) available
Measurement range	±2.5 mm (±0.12 in) X, Y, Z
Overtravel protection	X, Y, -Z via SH80 break-off +Z via mechanical 'bump-stop'
Resolution of scales	0.02 µm (0.0000008 in)
Spring rate	Approximately 1.8 N/mm
Weight	SP80: 860 g (30.3 oz) SH80: 170 g (6.0 oz) KM80: 110 g (3.9 oz)
Pull off force of SH80	<20 N when using SCP80, otherwise approximately 80 N
Stylus range	M5 threaded
Stylus carrying capability	Length up to 800 mm (30.5 in) Weight up to 500 g (17.6 oz) – may be unbalanced
Probe power supply	+9 V to +18 V, maximum 300 mA DC
System power supply	+5 V ±0.25 V @ 1.25 A maximum DC including IU80
SP80 probe outputs (X, Y, Z)	1.5 V ±0.25 V analogue quadrature signal
Interfacing options	Using a UCC2 SP80 daughter card for direct UCC2 integration Using a Renishaw PIC counter card (CC6) and Renishaw interpolator unit (IU80) Using an OEM interface card in conjunction with an IU80 Using an OEM supplied counter card and interpolator unit
Change rack system	SCP80 units mounted to MRS SCP80V units mounted to MRS for rear facing styli

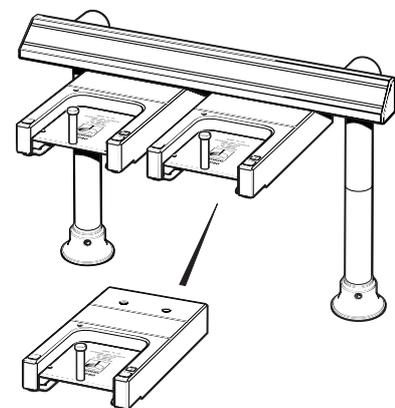


Additional information

Selected part numbers

(please see www.renishaw.com/SP80 for further options)

A-2238-0700	SP80 probe kit (includes probe body, SH80, KM80, PL157 probe cable and 60 mm x D8 stylus)
A-2238-0703	KM80 - standard quill mounting plate
A-2238-0705	SH80 - stylus holder
A-2238-0706	SCP80 - stylus change port
A-2238-0720	IU80 - interpolator unit
A-4068-0400	CC6 - PCI counter card
A-1333-0021	UCC1/SP80 daughter card
A-1016-7133	PL158 - IU80 to CC6 cable
A-1016-7129	PL156 - IU80 unterminated cable



SCP80's mount to MRS

For worldwide contact details, please visit our main website at www.renishaw.com/contact