

# SP25M compact scanning probe system

## The world's most compact and versatile scanning system

The SP25M is two sensors in one, and has unrivalled flexibility due to the system's modularity. Users can scan for form and take high accuracy discrete points by using a dedicated scanning module or, alternatively, use an adaptor to carry Renishaw's TP20 range of touch-trigger probe modules.

The SP25M's compact size and autojoint mounting makes it compatible with PH10M, PH10MQ and PH6M probe heads. It can also be mounted on an extension bar, providing excellent reach and access to part features.

Three scanning modules feature a pivoting design which delivers exceptional dynamic performance and optimised high accuracy performance over the entire stylus range from 20 to 200 mm long. This avoids most of the performance loss seen in other scanning probes as stylus length increases.

Module and stylus changing is enabled using the FCR25 flexible change rack, which can be located either on the CMM bed, or in Renishaw's MRS modular rack system.



### Key benefits

#### Excellent part accessibility

At just 25 mm (0.97 in) diameter, the SP25M is small and light, making it ideally suited to mounting on articulating heads and on extensions of up to 100 mm (3.94 in). Thus a total reach of some 400 mm (15.75 in) is possible. However, it is also sufficiently compact to suit very small CMM's and multi-sensor machines.

#### Modularity to allow unrivalled flexibility

The SP25M system allows the user to configure a basic installation which can be readily expanded at any time. This can include any, or all, system elements, plus automated rack changing for optimum productivity.

#### Two sensors in one - scanning and touch-trigger

SP25M allows the user to always select the most suitable measurement solution to match the application. Scanning or touch trigger? Now you can efficiently do both with a single probe system!

### Innovations

#### Isolated optical metrology

A pivoting mechanism and isolated optical metrology system measure probe deflection 'back to earth'. This avoids errors generated in stacked measurement axes, as used in 'tower' scanning probes.

#### Three scanning modules provide optimal performance across a range of stylus lengths

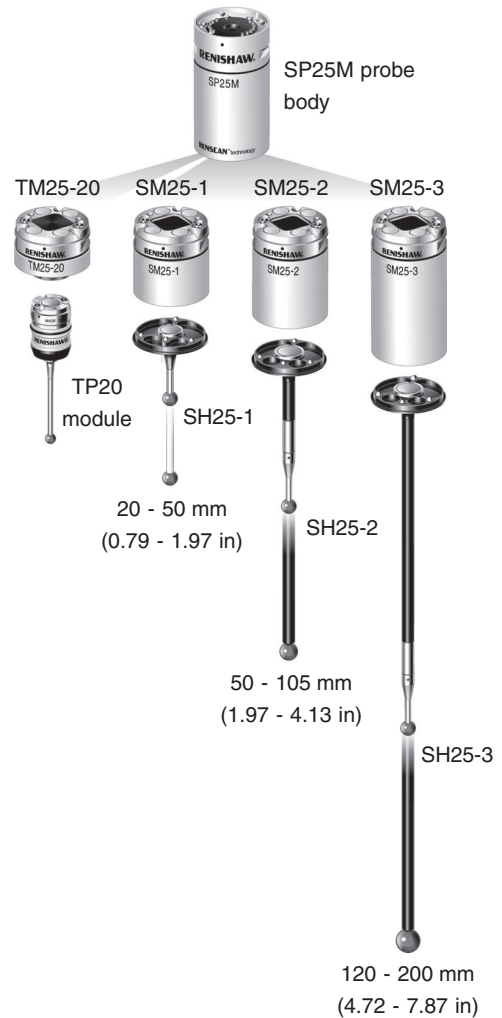
Each scanning module has a spring rate and gain optimised for a range of stylus lengths. SP25M measures accurately with styli up to 200 mm long. This breakthrough technology puts SP25M into a class of its own.

#### 3rd order polynomial calibration

Renishaw has developed sophisticated calibration methods for its range of scanning probes to ensure maximised performance. SP25M uses the most advanced of these methods.

## Specification

<b>Mounting</b>	Renishaw's autojoint: PH10M, PH10MQ or PH6 heads  May be mounted on autojoint extension bars
<b>Probe dimensions</b>	Ø25 mm (Ø0.98 in) x length dependent upon module used
<b>Probe attributes</b>	3 axis analogue measurement (X, Y, Z)  Pivoting motion in XY plane with translation in Z
<b>Measurement range</b>	±0.5 mm (±0.02 in) deflection in all directions in all orientations
<b>Overtravel range</b>	±X, ±Y = 2.0 mm (0.08 in)  +Z = 1.7 mm (0.07 in)  -Z = 1.2 mm (0.05 in)
<b>Crash protection</b>	X, Y, -Z via break-off of either module or stylus holder  +Z via integral bump-stop design
<b>Resolution</b>	<0.1 µm (0.000004 in) with either UCC1 daughter card or AC3 interface card
<b>Spring rate</b>	0.2 N/mm (with longest stylus)  0.6 N/mm (with shortest stylus)
<b>Damping</b>	Single viscous fluid damper
<b>Power supply</b>	+12 V (±5%), -12 V (+10% / -8%), +5 V (+10% / +13%) DC at probe
<b>Outputs (X, Y, Z)</b>	Non-linear and non-orthogonal analogue outputs – rate, gain and resolution are not fixed
<b>Probe calibration</b>	SP25M requires a non-linear, third-order polynomial calibration method
<b>Suitable styli</b>	M3 range
<b>Stylus length (EWL)</b>	SM25-1 = 20-50 mm (0.78 – 1.97 in)  SM25-2 = 50-105 mm (1.97 – 4.11 in)  SM25-3 = 120-200 mm (4.72 – 7.87 in)
<b>Interface options</b>	UCC1 SP25M daughter card or,  AC3 PC interface card for machines not fitted with the UCC1 controller



## Additional information

A range of SP25M probe kits are available to suit your application - from entry-level kits for tough-trigger users, to full combination kits. A range of module kits are available to supplement the probe kits, allowing SP25M users to build up their probing capability over time.

Details of probe and module kits, module change racks and spare parts can be found at [www.renishaw.com/SP25M](http://www.renishaw.com/SP25M).

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