

## Renishaw TP200 Probe & Module



Brand: RENISHAW

Category: Renishaw Probe Body & Modules

A compact, module-changing probe that uses strain-gauge mechanisms for higher accuracy and longer life than kinematic touch-trigger probes.

The TP200 system components are:

- TP200 or TP200B probe body (the TP200B is a variant with increased vibration tolerance)
- TP200 stylus module – choice of fixed overtravel forces: SF (standard force) or LF (low force)
- PI 200-3 probe interface
- SCR200 stylus change rack
- There is also an EO module (extended overtravel) which has the same overtravel force as the SF but provides

increased operating range and protection in the probe Z-axis.

### Features and benefits

- Strain-gauge technology offers excellent repeatability and precision 3D form measurement
- Zero reset errors
- No lobing effect
- 6-way measuring capability
- Stylus reach of up to 100 mm (GF styli)
- Rapid probe module changing without the need to re-qualify the stylus tips
- Life of >10 million triggers

### TP200 / TP200B probe body

The TP200 probe uses micro strain gauge transducers to deliver excellent repeatability and accurate 3D form measurement even with long styli.

The sensor technology gives sub-micron repeatability and eliminates the lobing characteristics encountered with kinematic probes. The solid-state ASIC electronics within the probe ensure reliable operation over millions of trigger points.

The TP200B uses the same technology as TP200 but has been designed to have higher tolerance to vibration. This helps to overcome the problem of 'air' trigger generation which can arise from vibrations transmitted through the CMM or when using long styli with faster positioning speeds.

Please note that we do not recommend the use of TP200B with the LF module or cranked / star styli.

Specification summary	TP200	TP200B
Principal application	3D CMM where high accuracy is required.	As TP200 but where 'air' trigger events occur.
Sense directions	X-axis, Y, Z, XZ	X-axis, Y, Z, XZ
Unidirectional repeatability (2σ µm)	Trigger level 1: 0.40 µm (0.00015 in) Trigger level 2: 0.50 µm (0.0002 in)	Trigger level 1: 0.40 µm (0.00015 in) Trigger level 2: 0.50 µm (0.0002 in)
XY (2D) form measurement deviation	Trigger level 1: ±0.80 µm (0.00032 in) Trigger level 2: ±0.80 µm (0.00032 in)	Trigger level 1: ±1 µm (0.0004 in) Trigger level 2: ±1.2 µm (0.00047 in)
XYZ (3D) form measurement deviation	Trigger level 1: ±1 µm (0.0004 in) Trigger level 2: ±1.40 µm (0.00055 in)	Trigger level 1: ±1.30 µm (0.00051 in) Trigger level 2: ±1.6 µm (0.00063 in)
Repeatability of stylus change	With SCR200: ±0.80 µm (0.00032 in) max. Manual: ±1 µm (0.0004 in) max.	With SCR200: ±0.80 µm (0.00032 in) max. Manual: ±1 µm (0.0004 in) max.
Trigger force (at stylus tip)	XY plane (at module): 0.02 N Z-axis (at module): 0.07 N XY plane (GF / EO module): 0.2 N to 0.4 N XY plane (LF module): 0.1 N to 0.15 N Z-axis (GF / EO module): 0.40 N Z-axis (LF module): 1.80 N	XY plane (at module): 0.02 N Z-axis (at module): 0.07 N XY plane (GF / EO module): 0.2 N to 0.4 N XY plane (LF module): 0.1 N to 0.15 N Z-axis (GF / EO module): 0.40 N Z-axis (LF module): 1.80 N
Overtravel force (at 0.50 mm displacement)	XY plane (GF / EO module): 0.2 N to 0.4 N XY plane (LF module): 0.1 N to 0.15 N Z-axis (GF / EO module): 0.40 N Z-axis (LF module): 1.80 N	XY plane (GF / EO module): 0.2 N to 0.4 N XY plane (LF module): 0.1 N to 0.15 N Z-axis (GF / EO module): 0.40 N Z-axis (LF module): 1.80 N
Weight (probe sensor and module)	22 g (0.78 oz)	22 g (0.78 oz)
Maximum extension (GF or a PI 10 R/L/S series head)	100 mm (3.94 in)	100 mm (3.94 in)
Maximum recommended stylus length (M2 styl range)	GF / EO module: 50 mm (1.97 in) steel to 100 mm (3.94 in) GF LF module: 20 mm (0.79 in) steel to 50 mm (1.97 in) GF	GF / EO module: 50 mm (1.97 in) steel to 100 mm (3.94 in) GF LF module: 20 mm (0.79 in) steel to 50 mm (1.97 in) GF
Mounting method	M8 thread	M8 thread
Stylus interface	PI 200-3, UCC	PI 200-3, UCC
Stylus module changing rack	Automatic: SCR200 Manual: MSR1	Automatic: SCR200 Manual: MSR1
Stylus range	M2	M2