

# OMP400 optical machine probe



[www.renishaw.com/omp400](http://www.renishaw.com/omp400)

## Specification

Optical setting		Modulated	Legacy
<b>Principal application</b>		Workpiece inspection and job set-up on small to medium machining centres and small multi-tasking machines.	
<b>Transmission type</b>		360° infrared optical transmission	
<b>Compatible interfaces</b>		OMI-2, OMI-2T, OMI-2H, OMI-2C or OSI/OMM-2	OMI or OMM/MI 12
<b>Operating range</b>		Up to 5 m (16.4 ft)	
<b>Recommended styli</b>		High modulus carbon fibre, lengths 50 mm (1.97 in) to 200 mm (7.88 in)	
<b>Weight without shank</b> (including batteries)		256 g (9.03 oz)	
<b>Switch-on/switch-off options</b>		Optical on →	Optical off
		Optical on →	Timer off
<b>Battery life</b> (2 × ½ AA 3.6 V lithium-thionyl chloride)	<b>Standby life</b>	One year maximum, dependent on switch-on/switch-off option.	
	<b>Continuous use</b>	105 hours maximum, dependent on switch-on/switch-off option.	110 hours maximum, dependent on switch-on/switch-off option.
<b>Sense directions</b>		±X, ±Y, +Z	
<b>Unidirectional repeatability</b>		0.25 µm (10 µin) 2σ – 50 mm (1.97 in) stylus length ( <i>see note 1</i> ) 0.35 µm (14 µin) 2σ – 100 mm (3.94 in) stylus length	
<b>2D lobing in X, Y</b>		±0.25 µm (10 µin) – 50 mm (1.97 in) stylus length ( <i>see note 1</i> ) ±0.25 µm (10 µin) – 100 mm (3.94 in) stylus length	
<b>3D lobing in X, Y, Z</b>		±1.00 µm (40 µin) – 50 mm (1.97 in) stylus length ( <i>see note 1</i> ) ±1.75 µm (70 µin) – 100 mm (3.94 in) stylus length	
<b>Stylus trigger force</b> ( <i>see notes 2 and 5</i> ) XY plane (typical minimum) +Z direction (typical minimum)		0.06 N, 6 gf (0.22 ozf) 2.55 N, 260 gf (9.17 ozf)	
<b>Stylus overtravel force</b> XY plane (typical minimum) +Z direction (typical minimum)		1.04 N, 106 gf (3.74 ozf) ( <i>see note 3</i> ) 5.50 N, 561 gf (19.78 ozf) ( <i>see note 4</i> )	
<b>Minimum probing speed</b>		3 mm/min (0.12 in/min) with auto-reset	
<b>Sealing</b>		IPX8 (EN/IEC 60529)	
<b>Operating temperature</b>		+5 °C to +50 °C (+41 °F to +122 °F)	

Note 1 Performance specification is tested at a standard test velocity of 240 mm/min (9.45 in/min). Significantly higher velocity is possible depending on application requirements.

Note 2 Trigger force, which is critical in some applications, is the force exerted on the component by the stylus when the probe triggers. The maximum force applied will occur after the trigger point (overtravel). The force value depends on related variables including measuring speed and machine deceleration. **RENGAGE™** equipped probes offer ultra low trigger forces.

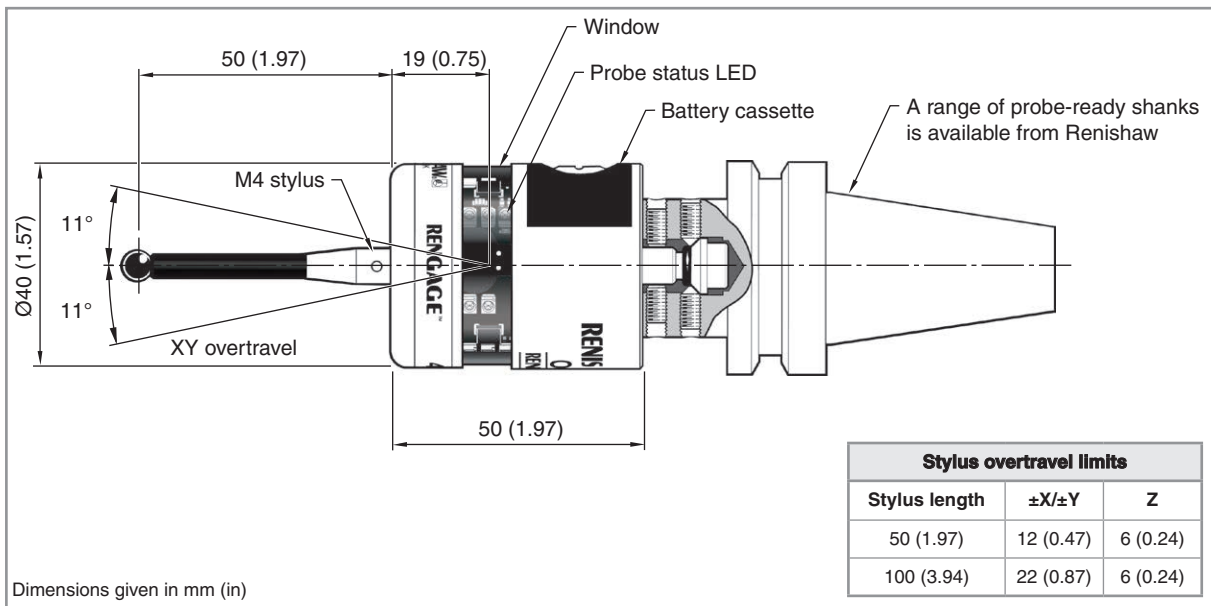
Note 3 Stylus overtravel force in XY plane occurs 70 µm after the trigger point and rises by 0.1 N/mm, 10 gf/mm (9.1 oz/in) until the machine tool stops (in the high force direction and using a carbon fibre stylus).

Note 4 Stylus overtravel force in +Z direction occurs 10 µm to 11 µm after the trigger point and rises by 1.2 N/mm, 122 gf/mm (109.6 oz/in) until the machine tool stops.

Note 5 These are the factory settings, manual adjustment is not possible.

For further information and the best possible application and performance support please contact Renishaw or visit [www.renishaw.com/omp400](http://www.renishaw.com/omp400)

## OMP400 dimensions



## OMP400 performance envelope

The OMP400 has a 360° transmission envelope over the ranges shown below.

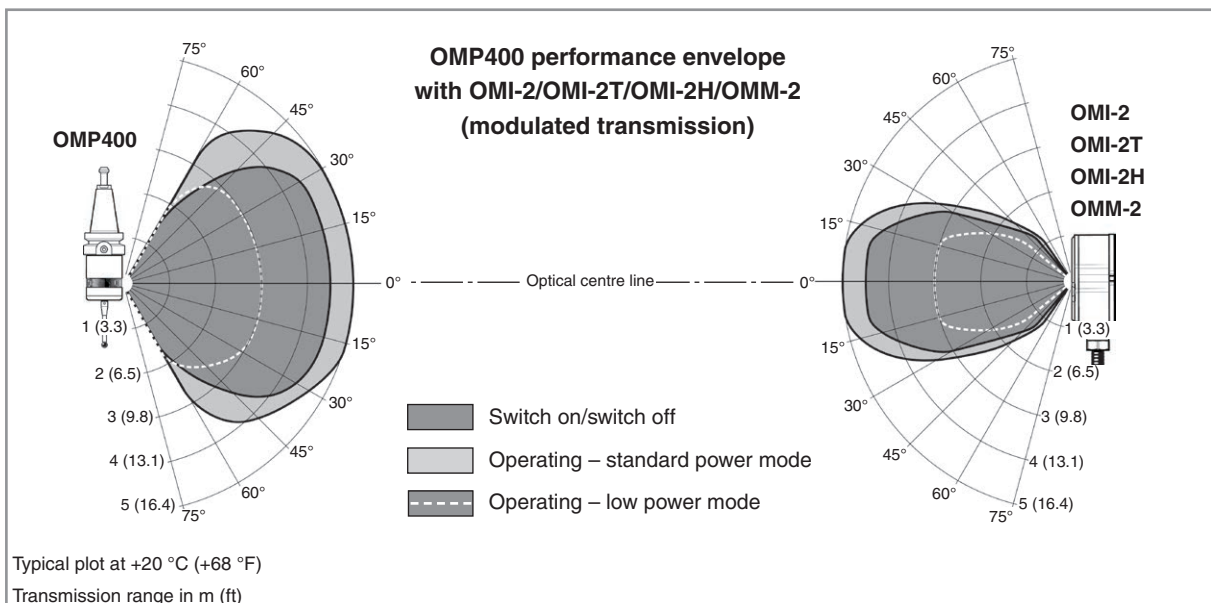
The probe system should be positioned so that the optimum range is maintained over the full travel of the machine axes.

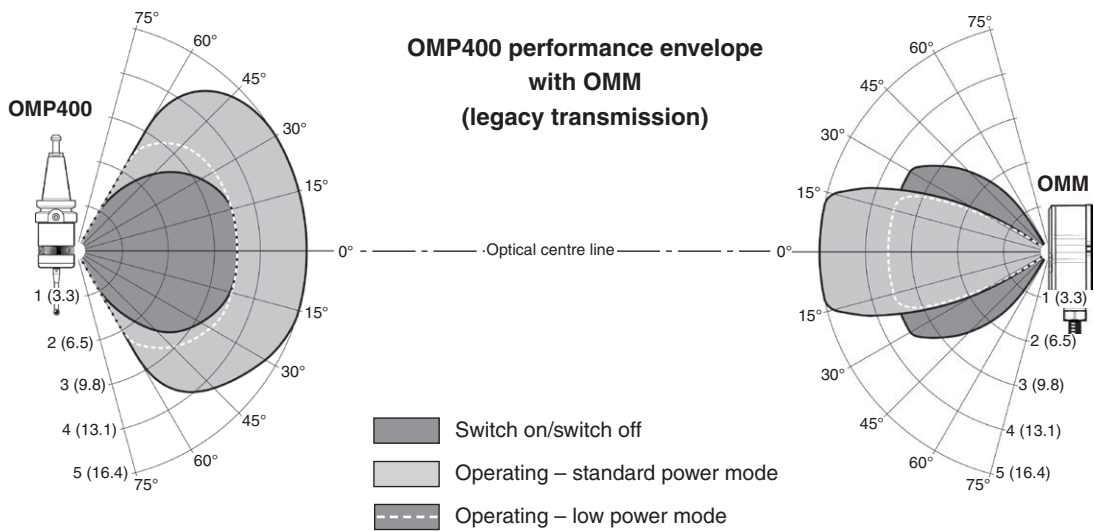
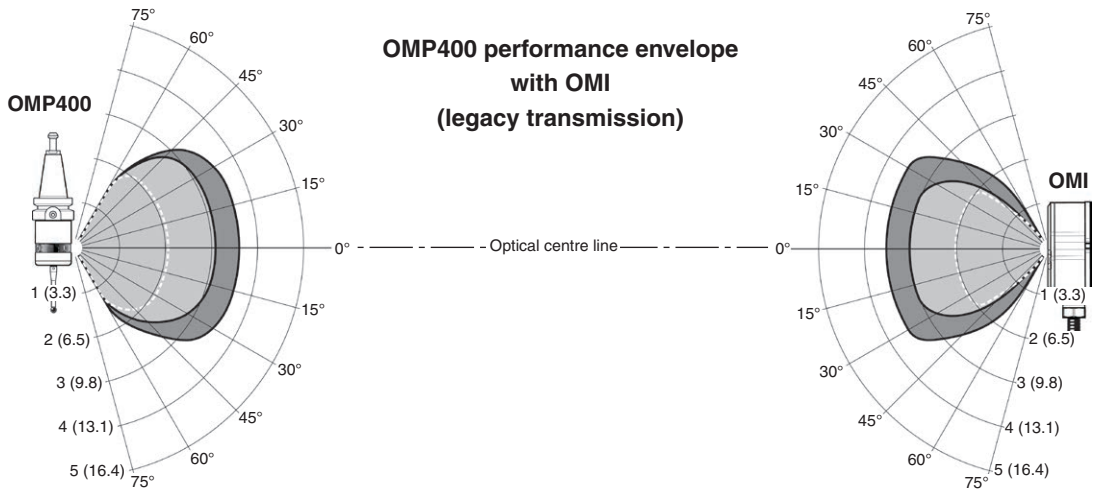
The OMP400 and optical receivers may deviate from the optical centre line, provided opposing light cones always

overlap, with transmitters and receivers in the other's field of view (line of sight).

Natural reflective surfaces within the machine may improve the signal transmission range.

Coolant residue accumulating on the receiver will have a detrimental effect on transmission performance. Wipe clean as often as is necessary to maintain unrestricted transmission.

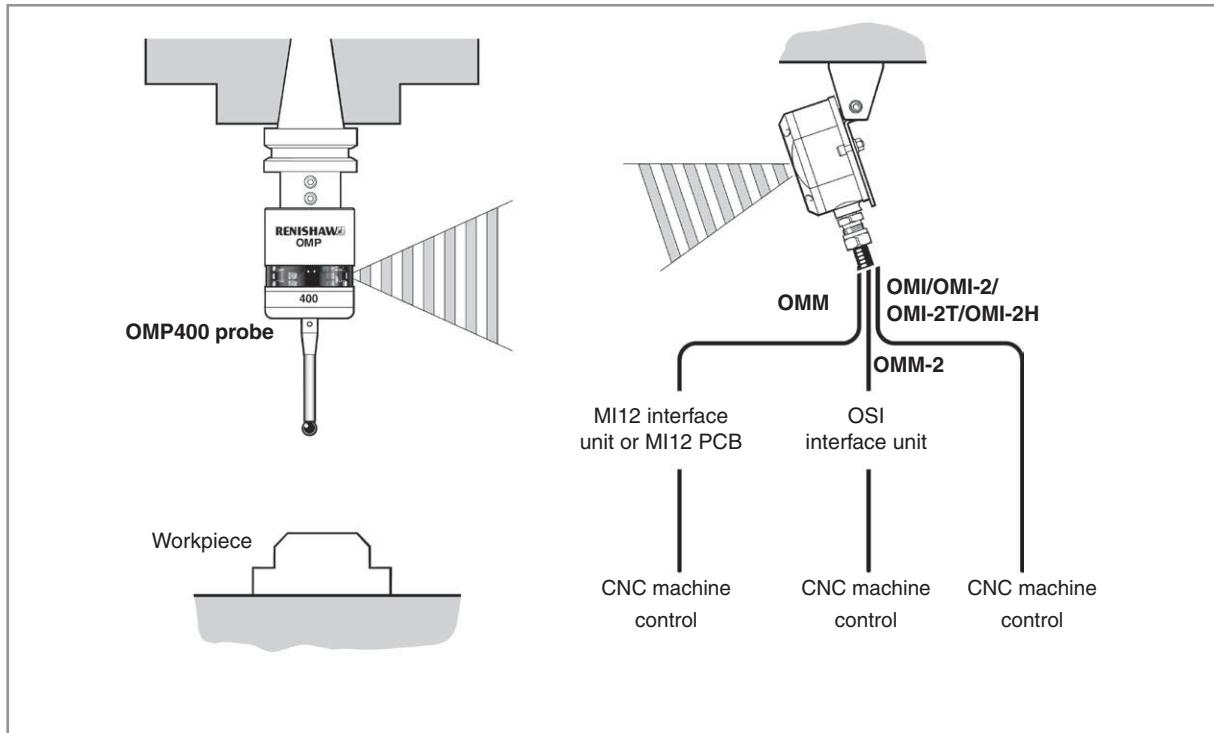




Typical plot at +20 °C (+68 °F)

Transmission range in m (ft)

## Typical optical probe system



## Spare parts and accessories

A full range of spare parts and accessories is available.  
Please contact Renishaw for a full list.

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

