

RENISHAW

Key features and benefits

✓ Quick

Simultaneously measure linear, pitch, yaw, horizontal, and vertical straightness in the time it takes to perform a single traditional measurement.

✓ Simple

Easy set-up, familiar to users of other interferometric systems. Automatic sign detection and visual alignment minimises human errors.

✓ Reassuring

Measuring all errors directly allows the user to see results as the test is in progress.

Unique technology

Full measurement capability in all orientations with optical roll

RENISHAW
apply innovation™



Need spares and accessories?

Visit our Online store

www.renishaw.com/shop/calibration



www.renishaw.com/calibration

+44 (0) 1453 524524

uk@renishaw.com

#renishaw

© 2024 Renishaw plc. All rights reserved. RENISHAW® and the probe symbol are registered trade marks of Renishaw plc. Renishaw product names, designations and the mark 'apply innovation' are trade marks of Renishaw plc or its subsidiaries. Other brand, product or company names are trade marks of their respective owners. Renishaw plc. Registered in England and Wales. Company no: 11106260. Registered office: New Mills, Wotton-under-Edge, Glos, GL12 8JR, UK.

WHILE CONSIDERABLE EFFORT WAS MADE TO VERIFY THE ACCURACY OF THIS DOCUMENT AT PUBLICATION, ALL WARRANTIES, CONDITIONS, REPRESENTATIONS AND LIABILITY, HOWSOEVER ARISING, ARE EXCLUDED TO THE EXTENT PERMITTED BY LAW.



Part no.: L-9936-9120-01-A

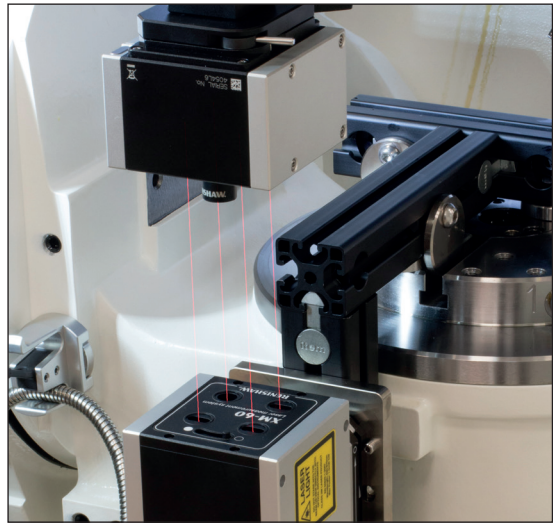
RENISHAW
apply innovation™



XM-60 and XM-600 multi-axis calibrators

Measure six degrees of freedom in any orientation from a single set-up

The XM-60 and XM-600 systems are capable of measuring errors in six degrees of freedom along a linear axis, simultaneously from a single set-up. They are powerful diagnostic tools that measure all geometric errors in the axis from a single capture.



XM-60
multi-axis calibrator

Knowing the capability of machine tools before metal cutting is the foundation of any machining process. The XM-60 multi-axis calibrator measures all six degrees of freedom, highlighting problems before they affect productivity.

The XM-60 multi-axis calibrator uses CARTO software for simple and quick data capture with automatic detection of sign convention. With the help of comprehensive analysis software, you can investigate the relationship between different error types along axes and monitor the drift of a machine's performance over time. This feature makes the XM-60 system an invaluable tool for maximising the productivity, efficiency, and quality of output from a machine shop.

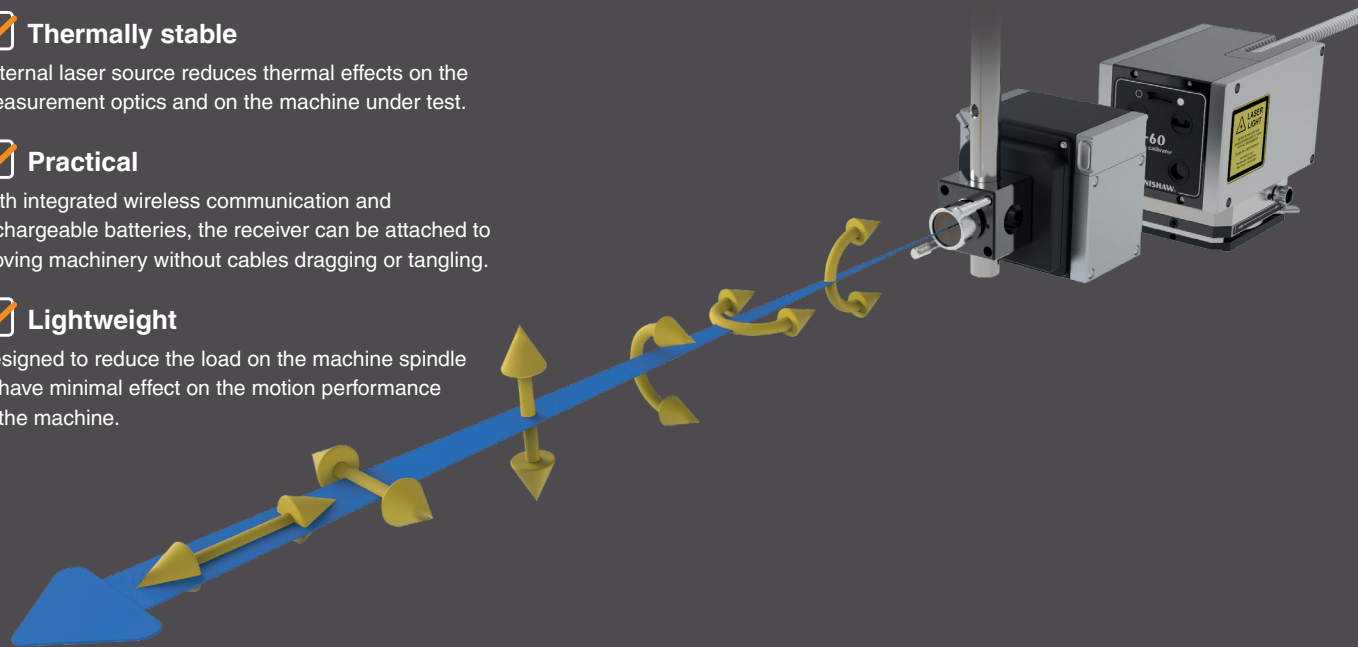
Compatibility
 CARTO software



www.renishaw.com/xm60

XM-60 and XM-600 system overview

- Flexible**
Separate laser unit enables flexible mounting options and minimises the impact on the measurement volume.
- Thermally stable**
External laser source reduces thermal effects on the measurement optics and on the machine under test.
- Practical**
With integrated wireless communication and rechargeable batteries, the receiver can be attached to moving machinery without cables dragging or tangling.
- Lightweight**
Designed to reduce the load on the machine spindle to have minimal effect on the motion performance of the machine.



Six Degrees of Freedom (6DoF)

The six different types of error in linear motion are linear, horizontal straightness, vertical straightness, pitch, yaw and roll.

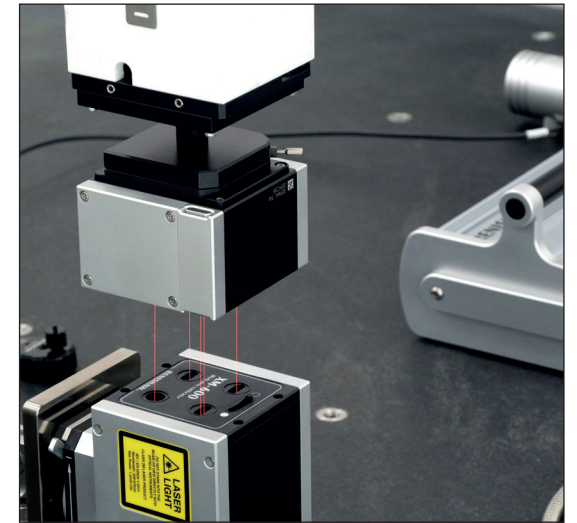
Performance specifications

XM-60 and XM-600 multi-axis calibrators

Measurement type	Axial range	Measurement range	Accuracy	Resolution
Linear	0 m to 8 m	0 m to 8 m	±0.5 ppm (with environmental compensation)	1 nm
Angular (pitch/yaw)	0 m to 8 m	±500 µrad	±0.004A ±(0.5 µrad +0.11M µrad)	0.03 µrad
Straightness*	0 m to 6 m	±50 µm ±250 µm	±0.01A ±1 µm ±0.01A ±1.5 µm	0.25 µm
Roll*	0 m to 4 m 4 m to 6 m	±500 µrad	0 to 4 m: ±0.01A ±6.3 µrad 4 to 6 m: ±0.01A ±10.0 µrad	0.12 µrad

Note: Accuracy values are reported to a statistical confidence of 95% (k=2). They do not include the errors associated with the normalisation of the readings to a material temperature of 20°C.

A = displayed error reading
M = measured distance in metres
*The data stitch functionality in CARTO supports accurate readings for all six degrees of freedom beyond 6 metres.



XM-600
multi-axis calibrator

The XM-600 multi-axis calibrator has been designed with additional functionality, to communicate directly with Renishaw's UCC controllers.

The XM-600 system incorporates technology developed for the XM-60 system, which allows it to measure all six degrees of freedom in a single measurement. It is fully integrated with Renishaw's UCC suite, which reduces error mapping time on a CMM by 75%.

The XM-600 system also delivers the full functionality of the XM-60 system when used with CARTO software, making it ideal for both machine tool and CMM use.

Compatibility
 CARTO software
 UCC suite (V5.4.1 and above)



www.renishaw.com/xm600