

## XL-80: portability, performance and ease of use from new compact laser interferometer measurement system

**One look at Renishaw's new XL-80 laser unit and XC-80 compensator and you can't help but notice just how much smaller they are than the existing ML10 and EC10 equivalents. With a combined weight of just over 3 kg (including connecting cables, power supply and sensors) they weigh 70% less. Small size also means that other system components, such as tripod and stage, have been reduced to suit, and the whole system (less tripod) can be packed into a much smaller transport case. The smallest "wheelie-case" option is now just over 50% of the previous case size, but can still carry a full linear and angular system and has provision for a Renishaw QC10 ballbar kit. Weighing less than 17 kg, it creates a highly portable "check and correct" system unmatched by rival systems.**



To fully complement the portability of the rest of the system, a new tripod and case are available, weighing just 6.2 kg.

The small dimensions of the laser head and stage also allow them to be easily mounted on a standard magnetic base for those applications where tripod mounting is not convenient. With the same beam height and optics dimensions as the ML10 system, the XL-80 laser measurement system can also still be placed directly on a granite table (without tripod stage) for co-ordinate measuring machine calibration.

Renishaw has reduced the typical warm-up time for the laser to around 5 minutes. This is quicker than comparable systems and allows the user to minimise waiting time and increase the available measurement time, which is very important for calibration service providers and those needing to perform multiple measurements on one site.



Standard features now include a signal gain switch that gives the option of 80 m linear range or increased signal strength at shorter ranges. A multi-signal connector facility gives a standard trigger signal-in (for data capture), an analogue voltage-out facility and an optional quadrature signal output, to give far greater flexibility as standard than the existing ML10 laser. Connection to a PC is now via USB so no separate interface is required, helping both reliability and portability.

With an increasing number of high speed motion systems in use that are travelling at speeds in excess of 2 m/s, customers have a need for a system that can work at these higher speeds and give even more detailed measurements than currently available. The XL-80 laser measurement system meets both requirements.

Maximum linear measurement speed is increased from 1 m/s to 4 m/s, whilst still retaining a position reading resolution of 1 nm. With readings being taken at 50 kHz, very detailed data about small high frequency movements can now be captured.

Updated versions of Renishaw software (LaserXL™ and QuickViewXL™) ensure that the data is presented in a familiar easy-to-use style. Laser XL™ provides step by step measurement to meet most machine tool verification standards and QuickViewXL™ software offers real-time display of laser readings on screen.

System accuracy is improved over the ML10 laser to  $\pm 0.5$  ppm, valid for the whole environmental operating range of temperature, pressure and humidity variations. Environmental readings are taken using the XC-80 Intelligent Sensor System which updates the laser reading compensation every 7 seconds via a USB link which also powers the XC-80 and sensors. Importantly, as with Renishaw's ML10 system, all measurements are based on the wavelength of a stabilised HeNe laser source, giving users assured traceability back to internationally recognised length standards.

The new system is totally backwards compatible with existing ML10 system optics, enabling the thousands of current ML10 users worldwide to upgrade to the new system, whilst retaining their existing investment in optics, procedures and staff training.

The XL-80 system is covered by a comprehensive warranty as standard, with the option to extend this to 5 years for a small price premium. With some special introductory offers for existing ML10 customers and for users of competitor systems, there are even more reasons to contact one of Renishaw's 29 offices worldwide to discuss the benefits of XL-80 as an upgrade or as a new system.

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