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XC100 environmental compensator

Precision that adapts to your environment

The XC100 environmental compensator builds on Renishaw's proven XC-80 technology to deliver real-time automatic wavelength correction. With highly responsive sensing performance, it helps maintain laser measurement accuracy, even in environments with rapidly changing conditions.

Compatible with the XL-80 laser interferometer, XM-60 or XM-600 multi-axis calibrators and CARTO software, it provides a seamless experience across Renishaw's calibration product range.

The XC100 compensator measures air temperature, air pressure and relative humidity, then automatically adjusts the measured laser wavelength. This ensures that Renishaw's linear laser measurement maintains market-leading accuracy across a wide range of environmental conditions. It also measures material temperature, enabling calibration results from machines operating at different temperatures to be normalised to a standard temperature.

Improved performance, greater adaptability

The XC100 hub is the central unit of the compensator, processing data from the internal pressure sensor and connected remote sensors. The high-resolution LCD touchscreen display with a wide viewing angle is ideal for real-time monitoring of remote sensor status, with intuitive visual indicators simplify operation.

Designed for maximum flexibility, the XC100 compensator supports any combination of air and material sensors, allowing the system to be configured for a wide range of applications. The dual-purpose air sensor measures both ambient temperature and humidity, enabling comprehensive measurement of environmental conditions throughout the machine volume. Frequent sensor updates allow the compensator to respond quickly to unexpected environmental changes. A thermally optimised design minimises the delay between temperature change and sensor response, while preventing the device itself from influencing measurements. The result is reliable, high-accuracy environmental compensation you can trust.

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Key features and benefits

Accuracy assured

Improved linear accuracy of laser measurement to 0.4 ppm.

Flexible configuration

Use any combination of air and material sensors to suit different applications.

Intuitive use

Real-time sensor monitoring and clear visual feedback from the XC100 hub.

Versatile set-up

Quick and secure installation with snap-lock cable connection and magnetic mounting.

Flexible installation and positioning

- Securely position the remote sensors and XC100 hub in the machine environment with magnetic mounting.
- Connect any remote sensor to any port on the XC100 hub for flexible system configuration.
- Simplify installation with snap-lock cable connections between the hub and remote sensors.
- Extend the standard 5 m sensor cable using 10 m extension cables to achieve a maximum cable length of 55 m.

Specifications

XC100 environmental compensator

Dimensions (weight)	106 mm × 76 mm × 56 mm (513 g)
Power supply	Powered via USB from PC
Remote sensors	Up to 4 air sensors* Up to 4 material sensors*
Interface	USB 2.0 high speed

*Supports up to four air or material sensors in any combination

XC100 environmental sensors

	Range	Accuracy
Material temperature	0 °C to 55 °C	±0.1 °C
Air temperature	0 °C to 40 °C	±0.2 °C
Air pressure	650 mbar to 1150 mbar	±1 mbar
Relative humidity (%)	0% to 95% non-condensing	±6% RH

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