Manufacturing Metrology Team – Instrument Data Sheet

Renishaw XL-80 laser interferometer

Instrument description

- Renishaw XL-80 laser interferometer is a Michelson-based ultra-stable laser (632 nm) interferometer that can be used to measure the error of a linear motion and to establish traceability of a linear measurement
- With environmental compensation, the XL-80 laser interferometer can achieve 1 nm resolution for linear motion
- Can be used to measure the error of scale, pitch and yaw of a single-axis linear motion
- Designed for portability
- The maximum linear distance that can be measured is 80m
- Can be applied to measure the error of a motion stage of various instruments, from metrology instruments to machine tools
- CARTO software solution provides data acquisition and data analysis capability from measurement results of Renishaw XL-80

System Specifications:

- Laser: Red laser with 632 nm wavelength
- Laser frequency accuracy: ±0.05 ppm
- Linear measurement range: 0 m – 80 m
- Linear resolution: 1 nm with environment compensator
- Linear measurement accuracy: ±0.5 ppm per metre
- Angular measurement range: 0 ° - 5 °
- Angular resolution: 0.1 µm/m
- Maximum travel velocity: 4 m/s
- Dynamic capture rate: 10 Hz – 50 KHz
- Preheat time: < 6 minutes
- Working temperature: 0 °C – 40 °C

Environmental sensors:

- Material temperature: 0 °C – 55 °C (±0.1 °C accuracy)
- Air temperature: 0 °C – 40 °C (±0.2 °C accuracy)
- Air pressure: 650 mbar – 1150 mbar (±1 mbar accuracy)
- Relative humidity 0 % - 90 % (±6% accuracy)

For contract measurement enquiries, please contact:

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