

# XL-80 laser system components

## Overview

This application note lists the system components for the XL-80 laser system.  
 To order please contact your local Renishaw office.

Description	Part number	
<p><b>XL-80 laser kit</b>            This is the heart of the Renishaw calibration system. Laser frequency stability is 0.05 ppm over one year, range 80 m, 4 m/s measurement velocity, 50 kHz dynamic measurement and 0.001 <math>\mu\text{m}</math> resolution. A single part number for all XL applications. Includes:</p> <ul style="list-style-type: none"> <li>• XL-80 Laser assembly</li> <li>• XL power supply kit 24V</li> <li>• Aux I/O connector kit</li> <li>• XL system support disk</li> <li>• USB cable</li> <li>• Foreign language label kit</li> <li>• XL system information pack</li> </ul> <p>Note: XL laser supplied with standard shutter as shown. Quadrature output available by special order only (Part No: A-9908-0455), subject to export control regulations.</p>	A-9908-0405	
<p><b>XC-80 compensator kit</b>            The environmental compensator for the XL-80 laser and a must for accurate linear measurements (not required for other modes). Incorporates air pressure and humidity sensors. One air and up to three material temperature sensors can be connected. Compensating range is 0°- 40° C, 650-1150 mbar pressure and 0-95% humidity.</p> <p>Includes:</p> <ul style="list-style-type: none"> <li>• XC-80 compensator assembly</li> <li>• Air temperature sensor &amp; cable kit</li> <li>• Material temperature sensor &amp; cable kit</li> <li>• USB cable</li> <li>• XC mounting plate</li> <li>• XL system support disk</li> <li>• XL system Information pack</li> </ul>	A-9908-0510	
<p><b>Laser software kit</b>            Includes LaserXL data capture software, XCal-View data analysis software and system manual.</p>	A-9925-0201	
<p><b>QuickView XL software</b>            QuickView™ is a simple to use and intuitive software package to capture, review and save dynamic data at up to 4 m/s and 50 kHz from the Renishaw XL-80 laser system. Ideal for motion system analysis.</p>	A-9908-0302	

<p><b>XL system support disk</b>          Specific manual for the XL80 system.          Minimum PC requirements 512 MB RAM, 1 GHz processor and 100 MB free hard disk space.          Included with all XL and XC kits.</p> <p>Note: ML10 system covered by separate disk (A-8003-5100).</p>	A-9908-0303	
<p><b>XL tripod stage kit</b>          Attaches to the laser head and allows yaw (range 3°) and translation (range 72 mm) adjustments. Quick release mechanism to fix onto the tripod base adapter or the XL magnetic base adapter. Weight 0.75 kg.</p> <p>Includes:</p> <ul style="list-style-type: none"> <li>• XL tripod stage</li> <li>• 3 stage retaining screws</li> <li>• XL tripod stage adapter</li> <li>• Spirit level circular</li> </ul>	A-9908-0700	
<p><b>Universal tripod base</b>          Aluminium tripod with 3 section leg extension and 3 set angle positions. Precision geared column mechanism.</p> <p>Minimum working height (legs collapsed) 48 cm,          Maximum height (legs extended) column up 149 cm,          Maximum height (legs extended) column down 121 cm,          folded dimensions incl boss (LxHxD) 650x160x160 mm, weight 3.9 kg.</p> <p>Note: does not include XL tripod stage adapter.</p>	A-9908-0295	
<p><b>Tripod case fabric</b>          An armoured fabric case suitable for the universal tripod base (incl. attached tripod stage adapter). Adjustable shoulder strap and strap for fixing to system cases. Lightweight, portable, washable.          Dimensions LxHxD 700x170x170 mm, weight 1.8 kg</p>	M-9908-0527	
<p><b>Stage retaining screw</b>          Three of these are needed to fix the laser head to the tripod stage.</p>	A-9908-0750	
<p><b>XL tripod stage adapter</b>          The interface for the XL tripod stage. Fits to the Universal tripod base or another support. Integrated female 3/8" thread</p>	A-9908-0770	
<p><b>Tripod converter ML-XL</b>          Attaches to the ML10 tripod adapter. By fixing an XL tripod stage adapter (A-9908-0770) to the male 3/8" thread, the XL tripod stage can be used with either "Compact" or "Standard" ML10 tripods.</p>	M-9908-0765	
<p><b>Magnetic base</b>          Can be used for mounting the optics or the XL laser head in combination with the XL magnetic base adapter. On/ off switch. Female M8 fixing thread on upper side provided. (for XL-80 mounting use together with item A-9908-0760)</p> <p>Note: Supplied as kit including qty 2 bases.</p>	A-9908-0780	
<p><b>XL magnetic base adaptor</b>          Allows tripod stage to be mounted to a magnetic base. Integrated male M8 thread.</p>	A-9908-0760	
<p><b>XC sensor cable</b>          Length 5 m, for use with air and material temperature sensors. Can be coupled together for increased overall length up to 60m.</p>	A-9908-0932	

<p><b>Air temp sensor &amp; cable kit</b> Range 0° -40° C, cable length 5 m, magnetic attachment. Sensor not available separately.</p>	<p>A-9908-0878</p>	
<p><b>Material temp sensor &amp; cable kit</b> Range 0° -55° C, cable length 5 m, magnetic attachment. Sensor not available separately.</p>	<p>A-9908-0879</p>	
<p><b>XC mounting plate</b> Allows the XC-80 to be fixed onto a magnetic surface.</p>	<p>A-9908-0892</p>	
<p><b>XL base system case</b> Heavy duty transport and storage case. Suitable for XL laser with stage, XC compensator, linear and angular optics, mounting kit, magnetic bases and alignment optics. Integrated wheels and handle. Provision for padlocks for added security. Optional QC10 case insert see below. Dimensions (LxHxD) 560x351x229 mm, weight empty 6.5 kg, weight loaded up to 17 kg.</p>	<p>M-9908-0313</p>	
<p><b>XL full system case</b> Heavy duty transport and storage case. Suitable for all components as per base case plus additional space for most other system optics apart from RX10 rotary axis. Integrated wheels and handle. Provision for padlocks for added security. Optional QC10 case insert see below. Dimensions (LxHxD) 560x455x265 mm, weight empty 8.2 kg weight loaded up to 25 kg.</p>	<p>M-9908-0314</p>	
<p><b>Universal 24 V power supply kit</b> Supplied with UK, European and US mains lead, input voltage 100–240 V</p>	<p>A-9908-0299</p>	
<p><b>USB cable kit</b> USB cable for connecting XL or XC to a computer, length 5 m (may change subject to supplier availability)</p>	<p>A-9908-0286</p>	
<p><b>Aux I/O connector kit</b> Enables you to wire up to and use TP-IN, and quadrature and analogue signal-out capabilities (quadrature function must be enabled first, see page 1). Full wiring instructions and specifications included.</p>	<p>A-9908-0329</p>	
<p><b>XL standard shutter</b> For linear, angular, flatness and squareness measurements. Included as standard in the laser XL-80 kit.</p>	<p>M-9908-0317</p>	
<p><b>Spirit level circular</b> Levelling aid for setting up the tripod and the laser. Inclination range <math>\pm 0.6^\circ</math>. Dimensions <math>\varnothing 20 \times 10</math> mm. Included in XL tripod stage kit.</p>	<p>A-9908-0323</p>	

<p><b>Linear optics kit</b>  For positioning accuracy and repeatability of an axis.  For linear measurements over 40 m you will require the long range linear accessory kit.</p>	A-8003-0440	
<p><b>Long range linear optics kit</b>  These optics enable linear measurements to be taken on axis lengths to 80 m.</p>	A-8003-4270	
<p><b>Angular optics kit</b>  These optics allow angular pitch and yaw measurements of an axis to be made. Can measure maximum angular deflections of up to <math>\pm 10^\circ</math> with resolution of 0.01 arc sec</p>	A-8003-0441	
<p><b>Optics mounting kit</b>  The optics mounting kit is for use with all Renishaw measurement optics. The kit is used to mount the measurement optics to the machine under test.</p>	A-8003-0447	
<p><b>Swivel mirror</b>  Allows adjustment to be made along machine diagonals, or on inclined axes. The swivel mirror can be used as an alignment aid for ANSI B5.54 diagonal measurement and is also useful when measuring slant-bed lathes.</p>	A-8003-1304	
<p><b>Fixed turning mirror</b>  This mirror is used primarily when there is restricted access to the required axis of measurement, allowing the laser beam to be re-directed.</p>	A-8003-1325	
<p><b>Straightness measurement kit (short range)</b>  These optics allow the measurement of horizontal straightness error in linear axes up to 4 m in length to be made. They also enable axis parallelism to be measured.</p>	A-8003-0443	
<p><b>Straightness measurement kit (long range)</b>  These optics can be used to measure the horizontal straightness error in linear axes from 1 m up to 30 m in length. They also enable measurement for parallelism of axes.</p>	A8003-0444	

<p><b>Straightness accessory kit</b>          This kit allows straightness measurements to be made in the “Z” or vertical axis of the machine with the laser pointing along either the “X” or “Y” horizontal axes.</p>	<p>A-8003-4259</p>	
<p><b>Squareness measurement optics</b>          These optics determine the out-of-squareness of two nominally orthogonal axes, by comparing their straightness slope values which are referenced via the optical square.</p>	<p>A-8003-0665</p>	
<p><b>Flatness measurement kit</b>          Flatness measurement is performed to check the form of CMM tables and all types of surface plate, using these optics. Note: Angular optics are also required to perform flatness measurements.</p>	<p>A-8003-0442</p>	
<p><b>LS350 laser beam steerer</b>          Provides easy angular adjustment of the laser beam in both horizontal and vertical planes. This patented accessory eliminates the need for fine laser translation and rotation. The LS350 laser beam steerer speeds up linear, angular and straightness measurements in both the horizontal and vertical axes, whether in-line or at 90°.</p>	<p>A-8003-3072</p>	



Product description	Part number	Basic kit (linear)	Standard kit (linear)	Advanced kit (linear and angular)	Advanced kit (linear, angular, straightness, flatness, squareness)	Dual axis kit (linear)	Rotary kit (angular)	CMM calibration (linear, angular, straightness)
XL-80 laser kit	A-9908-0405	1	1	1	1	2	1	1
XC-80 compensator kit	A-9908-0510	1	1	1	1	1		1
Laser software kit	A-9925-0201	1	1	1	1	1	1	1
QuickViewXL software	A-9908-0302	1	1	1	1	1	1	1
Linear optics kit	A-8003-0440	1	1	1	1	2		1
Long range linear optics kit	A-8003-4270				1			
Angular optics kit	A-8003-0441			1				
Optics mounting kit	A-8003-0447	1	1	1	1	2	1	
Swivel mirror	A-8003-1304				1			1
Fixed turning mirror	A-8003-1325		1	1				1
Straightness measurement kit (short range)	A-8003-0443				1			1
Straightness measurement kit (long range)	A-8003-0444				1			
Straightness accessory kit	A-8003-4259				1			1
Squareness measurement optics	A-8003-0665				1			
Flatness measurement kit	A-8003-0442				1			
LS350 laser beam steerer	A-8003-3072		1	1	1	2		1
Spirit level circular	A-9908-0323	1						
XL base system case	M-9908-0313		1	1		2	1	
XL full system case	M-9908-0314				1			1
XL tripod stage kit	A-9908-0700		1	1	1	1	1	1
Universal tripod base	A-9908-0295		1	1	1	2	1	1
Tripod case fabric	M-9908-0527		1	1	1	2	1	1
Magnetic base	A-9908-0780		1	1	1			

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- Sensor systems and software for measurement on CMMs
- Styli for CMM and machine tool probe applications

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