

Product Datasheet

Laser Analyzing Electronic Autocollimator



PLX Autocollimators and alignment Telescopes are high accuracy measurement instruments capable of resolution down to fractions of an arcsecond.

The Laser Analyzing Electronic Autocollimator is a complete unit with a software suite included.

The laser analyzing autocollimator can measure an incoming laser beams direction with respect to the autocollimators line of sight, as well as measuring the laser's divergence and width. This instrument can simultaneously measure several beams coming from different directions. This is in addition to functioning as a conventional autocollimator, thus combining laser analyzing technology with angular reflection technology. Potential applications include the alignment of lasers and optical elements to mechanical datums, for machinery alignment, optical testing or boresighting.

The laser analyzing electronic autocollimator unit has a 42-minute horizontal measurement range with a field of view of 84minutes horizontally. The focusing range is 30cm to infinity. Accuracy can be guaranteed with a 0.01 arcsecond resolution and high-quality sensitive CCD detectors can capture and display even very faint back reflections.

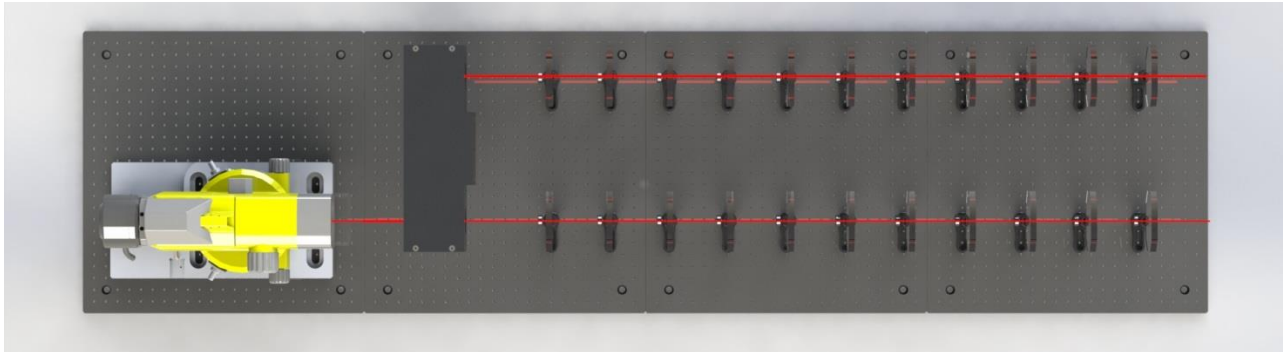
For ease of use the robustly designed all in one system has fully integrated mount and leveling capability which connects to a computer via USB 3.0.



Applications

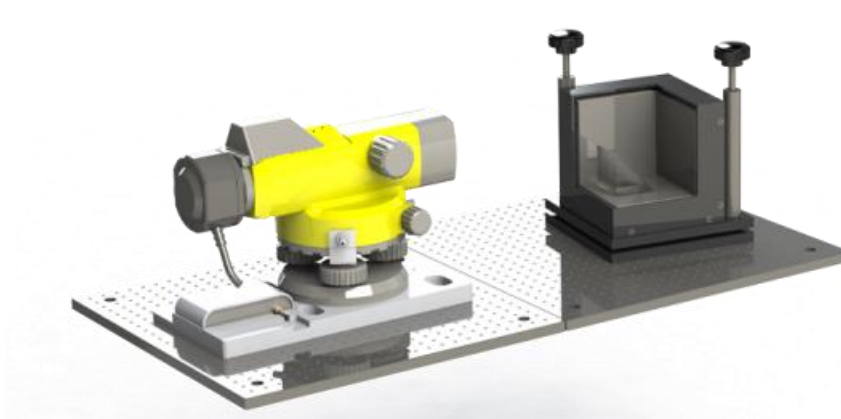
Machinery Alignment

The Autocollimator/Telescope can be used for checking the accuracy of machine slides. The autocollimator is aligned to the mirror, and the table is then moved either continuously or in discrete steps. Any error in the movement of the table shows up as the reticle image moving.



Optical Testing

The electronic autocollimator can be used for testing various optical components. Some can be measured directly, and others would require the use of supplemental optics. The picture below shows the autocollimator with the tool cube.



Boresighting

Boresighting is the aligning of a targeting system or systems with the barrel of a weapon, or the co-alignment of different targeting systems (visible and infrared). Boresighting will typically require some additional set-up/equipment. This could take the form of an accurate translation stage or a Lateral Transfer Hollow Retroreflector or periscope possibly equipped with a beam splitter.

Product Datasheet

Laser Analyzing Electronic Autocollimator



Specification	Value
Laser Type	CW & Pulsed
FoV Autocollimator	+40' (H) +25' (V)
FoV Telescope & beam profiler	+1° 20' (H) +50(V)
Clear Aperture	36mm
Autocollimator resolution	0.01 sec
Autocollimator accuracy	1.0 sec
Light source	Standard LED: 650nm Optional LED: 1060nm
Retro reflector for alignment	∅64 mm, N.W 280 g Thread ∅16 mm,
Beam Divergence Measurements	Down to 0.2 mRad or better
Line of Sight Retention as Function of Focusing	+ 2.5 seconds
Min. Focusing Distance	< 17.5 cm
Built in coarse aiming Laser Pointer	638 nm power <1.0mW Class 2 laser product IEC60825
Beam width resolution	Better than 2.5 μrad
Spectral Response	350 - 1310 nm (Telescope Mode) VIS 400-700 nm, NIR User specified
Resolution (H x V pixels)	1920 x 1200 Can be divided into multiple working areas, in parallel for up to 400 sectors
Gain Control	x24
Dynamic Range	60 dB, 12 bit
Exposure Speed	39 μsec to 20 sec
Frame Rate	40 fps (8 bit), 30 fps (12 bit) up to 550 fps@ fast mode (NEW)
Beam divergence accuracy	±2%
Position resolution of laser beam	Better than 2.5 μrad
Pixel Size	5.86 μm x 5.86 μm
Background Subtraction	User activated
Trigger	Internal Software Hardware Falling or Rising Edge Trigger Delay 0.015ms - 4.0 sec
Power Requirements	~2 Watt (Via USB 3.0 interface)
Dimensions (L x W x H)	240 x 154 x 190 mm
Weight (typical)	3 kg including cable
Interface	USB 3.0, Windows 10 (32 & 64 bit)
Operating Temperature	0° – 35° C