Digital Eccentricity Tester (with Air Bearing)

Lens module Eccentricity Tester (LensCT-AF) is a serial high precision, non-contact optic-centration testing equipment. They are equipped with a precision air bearing, and specially designed for Mutli-Lenses group or with large aperture lenses. The friendly software can directly record the data and show the testing result in required way, and make the actual measurement simply and efficiency. They could be used for single lens inspection before module assembly, or center offset control during the lenses assembly, also the combination center deviation detection after module assembly, as well as the every curve surfaces eccentricity reveal for each component lens inside the module after assembly.

As per operation way, LensCT-AF is classified for manual type (LensCT-AFM), Auto type (LensCT-AFA) and mutli-functions type (LensMT-AF), which contains of the Focal length(EFL/BFL/FFL) and Radius of Curvature(RoC) measurement besides eccentricity measurement, could provide one-stop measurement for all main optical-specifications.

Advantages：

- Both transmision and reflection measurement, good for single lens and lens group;
- With software, could locate the Optic-center(Focus point or center of curvature) automately, and record the position data, and display in required graph or in excel data.
- Equipped with high-precison air bearing, could directly show testing result.
- Could extend to EFL and RoC testing function（LensMT-AF）

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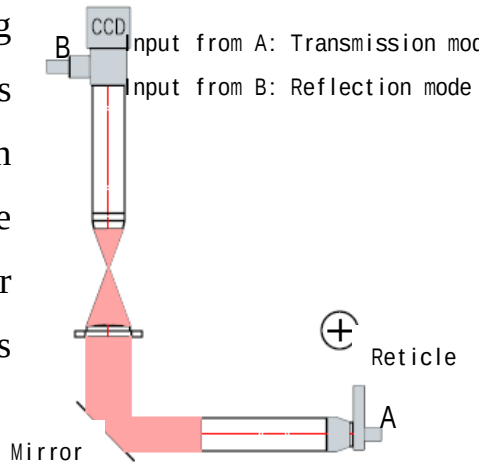
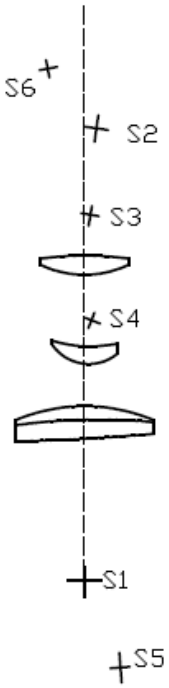
According to ISO 10110 the center error is present when the optical and the reference axis of a lens do not coincide, respectively these are different in position or direction. For circular lens, the lens usually is rotated along the periphery during the measurement, and a parallel light is conducted to the lens, and either pass through (transmission mode) or reflected (reflection mode) by the lens, and generate an image on the CCD camera. When a centration error presents, the image would trace a circle while the lens is rotated. The center error could be calculated based on the circle radius of the rotation image.





For the single lens, LensCT-AF uses the fiction wheel drive the lens rotate along its periphery, and the CCD would record the rotation track then calculate the center error. While the precision air bearing is recommended for the Mutli-Lenses group or with large aperture lenses testing, which could drive the lens(or lens group) rotate steadily. During the measurement, you can either manually move up/down the auto-collimator to locate the optic-center(for LensCT-AFM) then click the "test", or directly convey the lenses data from Zemax to software(for LensCT-AFA and LensMT-AF) and the equipment would auto-locate each optic-center then test the eccentricity and record the (x,y,z) data, and display in Excel file or in graph(as figure in left).

LensCT-AF Main Description:		
CCD connection		USB2.0
Resolution		0.1μm
Test accuracy		**0.5um**
Test range	**Diameter**	<Φ200mm
	RoC/EFL	± 3 ~ ± 450mm
Size (cm)		62x40x135
Weight		60Kg

Main parts of equipment:

- **Auto-collimator（with CCD）**
- **Step motor & controller;**
- **Achromatic objective sets;**
- **Precision Air-Bearing;**
- **Illuminator & fiber light guide**
- **Precision Mounting plate;**
- **Testing software, etc;**