

Laboratory Collimators

EOI's LC series of high resolution, reflecting collimators are used to provide a collimated source of infrared or visible energy to a system under test. EOI's LC series of collimators offer high on-axis performance with no obscuration and will accommodate a variety of sources at the focal plane.

Clear aperture diameters are available from 3 inches to 16 inches. The collimators are diffraction limited² in the mid IR band at ambient temperature of 20 to 30°C.

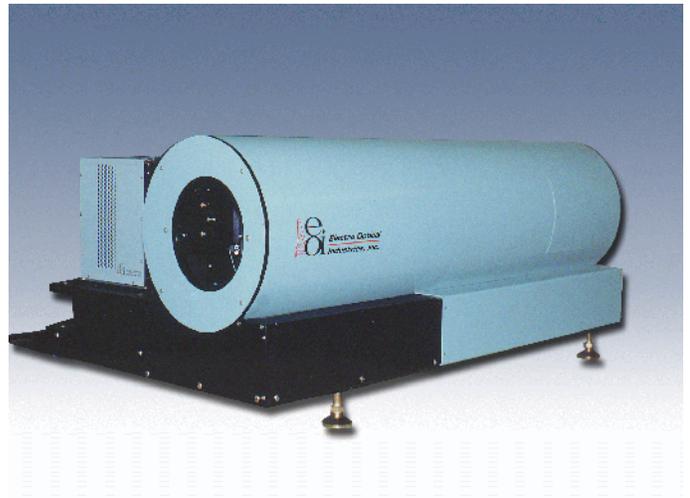
Options are available to allow visible sensor testing or testing over large temperature extremes. Either manual or motorized focus stages may be added to test sensors with adjustable range or focus.

The primary mirror surface is an off-axis, circular segment of a paraboloid and aluminized for high reflectivity with a SiO overcoated for durability. The flat folding mirror is coated with protected silver for best reflectivity at 45 degree incidence. Optional gold coatings are also available.

Collimators may be ordered with an **EOI** blackbody radiation source or differential temperature source mounted on the source support plate. If the blackbody is equipped with a target or aperture wheel, the target or aperture surface will be located at the focal plane.

Collimator with Blackbody and Target Wheel

- ! Calculate the diffraction limited target frequency.
- ! Calculate target frequency or bar width for different focal lengths.



Optional Equipment

- Athermal Systems
- Gold Mirror Coating
- Manual Adjustable Focus
- Motorized Adjustable Focus
- Visible Test Quality Mirrors (1/4 Wave @ 633 nm)

Note: Gold coatings may require periodic mirror recoating and have a limited warranty.



Dimension In Inches

Model Number	Clear ¹ Aperture	Focal ³ Length	Maximum ⁴ Target Background	Field of View (Deg)
LC-03	3	15	0.5	2.0
LC-04	4	20	0.75	2.0
LC-05	5	25	1.0	2.0
LC-06	6	30	1.0	2.0
LC-08	8	40	1.5	2.0
LC-10	10	50	1.8	2.0
LC-12	12	60	2.0	2.0
LC-14	14	70	2.0	2.0
LC-16	16	80	2.0	2.0

¹Clear aperture is defined by on-axis radiation and the circular aperture at the front plate of the collimator housing. Off-axis radiation will decrease the usable aperture. Off-axis radiation will decrease the usable aperture.

²Note that the blur circle due to diffraction in milliradians = $0.244 \times \text{wavelength in micrometers} \div \text{aperture diameter in centimeters}$. An optical mirror is generally considered to be diffraction limited if its surface does not depart from a perfect figure by more than 1/4 of the wavelength of interest when measured peak to valley or approximately 1/19 of the wavelength when measured as an rms error. Calculate the diffraction limited target frequency.

³Focal length is nominally 5 x Clear Aperture or f-5.

⁴Two inches is the standard EOI target diameter. Contact EOI for larger target sizes.

How to Order

Select desired model; Example: Model LC-14 /AFM is a 14 inch clear aperture system with a motorized adjustable focus stage.

This is data sheet eo663CLabCollimators. Information regarding this data sheet and any requests for data sheets may be directed to eo1@electro-optical.com.

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