

THERMAL IMAGING LENS ASSEMBLIES

LEADERS IN CHALCOGENIDE GLASS MOLDING

- Moldable solution for high volume production of MWIR or LWIR lenses
- Reduced Cost, Size and Weight (SWaP-C)
- Enhanced thermal properties



Advances in chalcogenide materials have enabled precision glass molding for mid- and long-wavelength infrared (MWIR & LWIR) optics in a process similar to visible molded lenses. LightPath's Molded Infrared Optics technology enables the production of high performance, cost-effective infrared aspheric lenses that do not rely on traditional diamond turning or lengthy polishing methods.

The infrared optics molding process allows lenses to be manufactured in high volume with a highly repeatable, consistent performance.

Diffraction features can be added to infrared aspheres to allow for sophisticated beam shaping or achromatization over a range of wavelengths. With LightPath's technology, these features are molded directly into the surfaces of the lens.

LightPath is a pioneer in the development, design and manufacturing of infrared optics made from molded chalcogenide glass. Our high volume production experience brings expertise and knowledge to your project as quantities for infrared optics continue to grow. With over 35 years' experience in precision glass molding, over 10 years molding Chalcogenides and millions of lenses sold, LightPath provides a wealth of knowledge on high volume manufacturing of precision molded optics and can help you implement your high volume infrared application.

THERMAL IMAGING LENS ASSEMBLIES

STANDARD LENS ASSEMBLIES

LightPath's infrared lens assemblies are a cost effective replacement for traditional diamond turned infrared lenses. LightPath's molded lenses provide exceptional value for high volume applications and are coated and assembled into threaded housings.

- Precision molded lenses using high-quality chalcogenide glass
- Passive athermalization optional for -40°C to +85°C
- High-volume, cost effective manufacturing
- Full design support for custom optics and mechanics from our experienced engineering team

Thermal Imaging Lens Assemblies				
Effective Focal Length	F/#	Detector Format (Resolution / Pixel Size) ¹	Horizontal Field Of View	Part Number
1.5mm	1.3	80x80 / 34µm	120°	7100205
1.9mm	1.3	80x80 / 34µm	90°	7100200
2.2mm	1.4	80x80 / 34µm	73°	7100192
5.3mm	1.3	160x120 / 25µm	44°	7100206
6.3mm	1.3	320x240 / 17µm	50°	7100207
7.7mm	1.3	320x240 / 17µm	41°	7100208
9mm	1.3	320x240 / 17µm	35°	7100209
9mm	1.0	320x240 / 17µm	34°	7100210
11mm	1.0	320x240 / 17µm	28°	7100213
13mm	1.0	320x240 / 17µm	24°	7100214
15mm	1.0	384x288 / 25µm	36°	7100215

¹ Performance data for other detectors available upon request



If you don't see the lens you need in our catalog, our engineering team will customize a solution for your specific application.



APPLICATIONS AND CAPABILITIES OF THERMAL IMAGING LENSES

APPLICATIONS AND CAPABILITIES

Infrared systems have grown rapidly in recent years in a broad spectrum of applications including:

- Thermal imaging and thermography
- Gas sensing and spectroscopy
- Security and surveillance
- Automotive vision enhancement
- Manufacturing process control and inspection
- Target tracking and identification



These applications demand infrared systems that utilize only the highest quality and most precise optics. LightPath Technologies is taking the same revolutionary technology that made us a global leader in molded glass aspheres and applying it to infrared applications.



THERMAL IMAGING LENS ASSEMBLY FOV TABLE

HORIZONTAL FOV ACROSS COMPATIBLE DETECTOR FORMATS FOR LWIR IMAGING LENSES

		Lens EFL:	1.5mm	1.9mm	2.2mm	5.3mm	6.3mm	7.7mm	9mm	9mm	11mm	13mm	15mm	19mm	
		Lens F/#:	f/1.3	f/1.3	f/1.4	f/1.3	f/1.3	f/1.3	f/1.3	f/1.0	f/1.0	f/1.0	f/1.0	f/1.0	
		(Part #)	(7100205)	(7100200)	(7100192)	(7100206)	(7100207)	(7100208)	(7100209)	(7100210)	(7100213)	(7100214)	(7100215)	(7100199)	
Horizontal Resolution of Detector (pixels)	80	Pixel Pitch	34 μ m	120°	90°	73°	30°	25°	20°	17°	17°	14°	12°	10°	8°
			25 μ m	81°	64°	52°	22°	18°	15°	13°	13°	10°	9°	8°	6°
			17 μ m	53°	42°	35°	15°	12°	10°	9°	9°	7°	6°	5°	4°
			12 μ m	37°	30°	25°	10°	9°	7°	6°	6°	5°	4°	4°	3°
			10 μ m	31°	25°	21°	9°	7°	6°	5°	5°	4°	4°	3°	2°
	160	Pixel Pitch	34 μ m					50°	41°	35°	35°	28°	24°	21°	16°
			25 μ m				44°	37°	30°	26°	26°	21°	18°	15°	12°
			17 μ m	120°	90°	73°	30°	25°	20°	17°	17°	14°	12°	10°	8°
			12 μ m	78°	61°	50°	21°	17°	14°	12°	12°	10°	9°	7°	6°
			10 μ m	64°	50°	42°	17°	15°	12°	10°	10°	8°	7°	6°	5°
	320	Pixel Pitch	34 μ m											41°	32°
			25 μ m					76°	61°	52°	49°	41°	35°	30°	24°
			17 μ m					50°	41°	35°	34°	28°	24°	21°	16°
			12 μ m				42°	35°	29°	25°	24°	20°	17°	15°	11°
			10 μ m			87°	35°	29°	24°	21°	20°	17°	14°	12°	10°
	384	Pixel Pitch	34 μ m												38°
			25 μ m							63°			42°	36°	28°
			17 μ m					61°	50°	42°	41°	34°	29°	25°	19°
			12 μ m					42°	35°	30°	29°	24°	20°	18°	14°
			10 μ m					35°	29°	25°	24°	20°	17°	15°	11°
640	Pixel Pitch	34 μ m													
		25 μ m													
		17 μ m											41°	32°	
		12 μ m					73°	59°	50°		39°	34°	29°	23°	
		10 μ m					60°	49°	42°	40°	33°	28°	24°	19°	