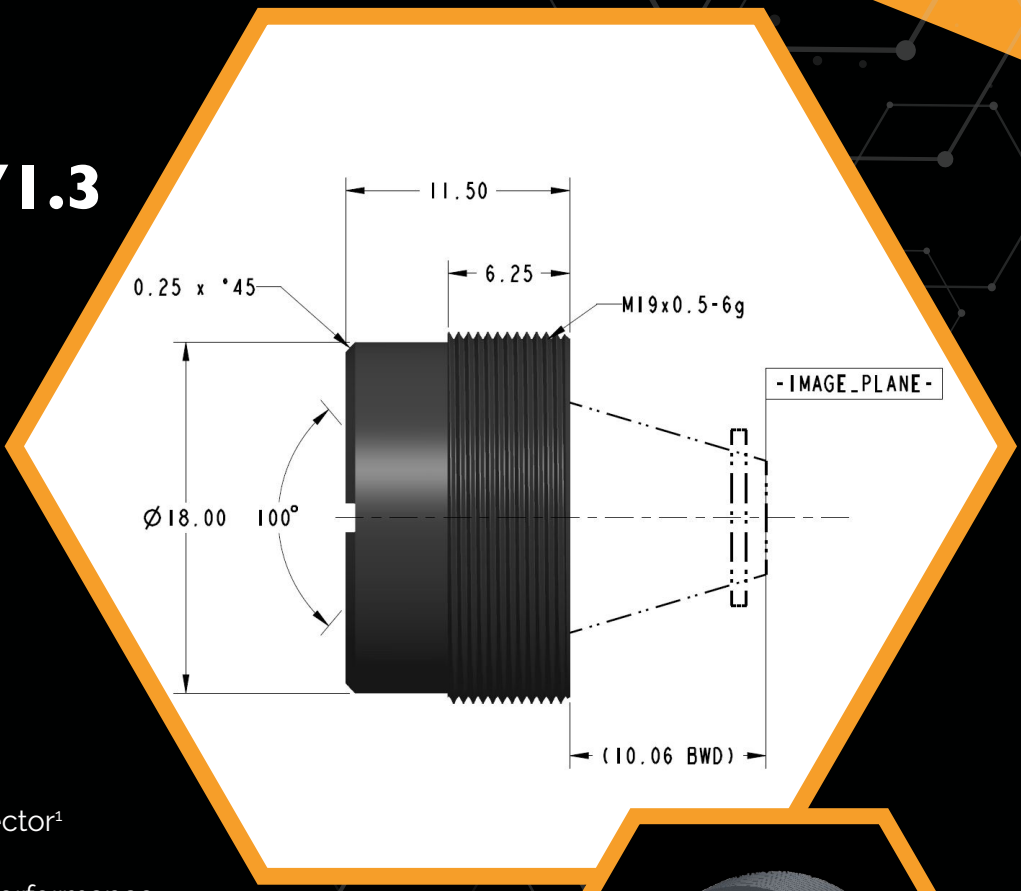
LightPath Technologies

7.7mm EFL, f/1.3 Thermal Imaging Assembly

PART #7100305



KEY FEATURES

OPTICAL:

7.7mm EFL, f/1.3 Lens
41° HFOV on 320x240/17µm detector[1]
Singlet design
Utilizes aspheric and diffractive performance
High efficiency AR coating for LWIR (8-14µm)
Optically Athermalized[2] using BD6™ material

MECHANICAL:

Small size and weight
Precision molded chalcogenide lens
Matte black anodized aluminum housing
Threaded interface for adjustable focus
Internally sealed to IP67 standard[3]

[1]Lens optimized for this format. Data for other formats available upon request.
[2]See optical performance table on page 2 for athermal temperature range.
[3]Outer threads must also be sealed at installation.

Horizontal FOV for Various Detector Sizes					
Resolution → Pixel Size ↓	80x80	160x120	320x240	384x288	640x480
34µm	20°	41°	86°	N/A	N/A
25µm	15°	30°	62°	75°	N/A
17µm	10°	10°	41° Optimal[1]	50°	86°
12µm	7°	14°	29°	35°	59°
10µm	6°	12°	24°	29°	49°

Optical Performance for 320x240 / 17µm Detector[1]

Parameter	Notes	Design Value	Unit
MTF - Min Sag/Tan at Nyquist (29.4cyc/mm)	Diffraction Limited MTF (Ref. Only)	51	%
	On-axis	50	%
	VFOV	41	%
	HFOV	32	%
	Corner	20	%
EFL	Magnification-based	7.7	mm
F/#	Aperture-based	1.3	
Field of View	Vertical	31	Deg
	Horizontal	41	Deg
	Diagonal (corner)	52	Deg
Relative Illumination	At HFOV	95	%
	At Corner Field	93	%
Distortion	At HFOV	6	%
	At Corner Field	9	%
Fixed-Focus Object Range	Range for 10% MTF drop w/o refocus	2.1- Infinity	m
Athermal Temp Range[2]	Range for 10% MTF drop w/o refocus	−62 to +82	°C
Operating Waveband	LWIR thermal waveband[1]	8—14	µm
Transmission[3]	HEAR coated witness samples (8-12µm)	>96	%

Mechanical Parameters

Parameter	Notes	Design Value	Unit
Height	Front to back of lens assembly	11.50	mm
Thread Interface	Lens assembly outer thread (ASME)	M19x0.5-6g	
Working Distance to Image Plane (FPA)	Assumes 0.76mm Si window, nominal focus at infinity	10.06	mm
Max Exposure Temp	Storage/post-processing	140	°C
Internal Seal	Threads must also be sealed at installation	IP67	

[1]Performance data for nominal design on specified detector over 8-12 µm waveband. Data for other detector formats available upon request.
[2]Assumes aluminum mount used between lens and detector FPA. Additional passive athermalization available in specialized housing.

2603 Challenger Tech Ct., Orlando, FL 32826 (407) 382-4003 sales@lightpath.com
www.lightpath.com