

List of Lens Modules for MWIR Cooled Thermal Cameras

- **Aspherical and binary optical technology adopted in design**

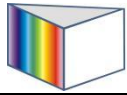
- **Various types of IR materials are used**

The lenses are designed and used in middle wavelength infrared range (**MWIR**) **thermal imaging cameras** of cooled FPA detectors at 3-5 μ m, with manual or motorized mechanism and in wide range of focal length, the single FOV and double FOV lenses modules are available. The designed modules are listed for your selection, and the customs modules are available for customer's request.



Features

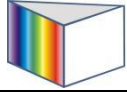
- Aspheric Technology and Binary Optics Technology are used in design, which effectively reduce the spherical aberration, distortion and other various aberrations, achieve athermalization design and reduce the number of needed lens elements, lower the cost.
- Various type of the infrared materials (like Ge, ZnSe, ZnS, AMTIR, CaF₂, Sapphire, BaF₂ ect.) are used in the lenses, which would successfully eliminate the aberration of the image and improve the quality of imaging, especially for the large diameter telephoto lenses.
- Advanced equipment and machines are used to process the infrared materials optics: ultra-precision single point diamond processing machine to achieve the precision aspheric in 3nm, diffractive surface processing equipment to process the Ge, ZnSe, ZnS and AMTIR materials.
- Different types of coating are made on the lens optics: high-efficiency anti-reflection coating (or high-efficiency AR), durable anti-reflection coating (or Durable AR) and diamond-like hard carbon coating (or DLC coating).
- Complete quality assurance system
- Within our quality system, we works out a series of specific craftworks and develops a strict test procedure to guarantee the quality of products.



Modules or types

The modules are designed for **320 x 256 - 30um/640 x 512 - 15um MWIR cooled detector at 3-5µm.**

No.	Module	Focal Length (mm)	F#	FOV (H x V)	Focus Mechanism	Flange Back Dist (mm)	Mechanical Connector	More Info
1	M13F2.0-ath	13	2.0	40.53°x32.91°	Athermalized (Optical)	See drawing	M34x0.75	More>>
2	M25F2.0-man	25	2.0	21°x17.1°	Manual	33.5	M45x1	
3	M27F2.0-ath	27	2.0	20.16°x16.19°	Athermalized (Optical)	See drawing	M34x0.75	More>>
4	M33F2.0-mot	33	2.0	16.6°x13.3°	Motorized	34.3	Flange	
5	M50F2.0-man	50	2.0	10.97°x8.78°	Manual	33	M50x1	
6	M50F2.0-ath	50	2.0	10.97°x8.78°	Athermalized (Optical)	See drawing	M34x0.75	More>>
7	M90F2.0	90	2.0	6.1°x4.9°	Motorized	27.7	Flange	
8	M90F2.0	90	2.0	6.1°x4.9°	Fixed athermal	76.5	Flange	
9	M100F2.0	100	2.0	5.5°x4.4°	Manual	52.245	M80x1	More>>
10	M120F2.0-man	120	2.0	4.6°x3.7°	Manual	48.5	M54x1	
11	M200F2.0-man	200	2.0	2.75°x2.2°	Manual	52.245	M80x1	More>>
12	M400F2.0-man	400	2.0	1.38°x1.1°	Manual	52.245	M80x1	More>>
13	M-DF-40/4.0-100/4.0 Double FOV	40	4.0	13.7°x11°	Motorized	33.5	Flange	
		100	4.0	5.5°x4.4°				
14	M-DF-40 F2.0-100F2.0 Double FOV	40	2.0	13.7°x11°	Motorized	30	Flange	
		100	2.0	5.5°x4.4°				
15	M-DF-75 F2.0-300F2.0 Double FOV	75	2.0	7.32°x5.86°	Motorized	38	Flange	
		300	2.0	1.83°x1.47°				
16	M-DF-75 F4.0-300F4.0 Double FOV	75	4.0	7.32°x5.86°	Motorized	35	Flange	
		300	4.0	1.83°x1.47°				
17	M-DF-60 F2.0-120F2.0 Double FOV	60	2.0	9.1°x7.3°	Motorized	27.7	Flange	
		120	2.0	4.58°x3.66°				
18	M-DF-160 F4.0-800F4.0 Double FOV	160	4.0	3.4°x2.7°	Motorized	45	Flange	
		800	4.0	0.69°x0.55°				



Note 1: The FOV(H) means the horizontal field of view, FOV(V) means the vertical field of view.

Note 2: The mechanical connector and flange back distance can be changed upon customer's request.