

# Variable Optical Imaging System

## High-definition Imaging Lens Set

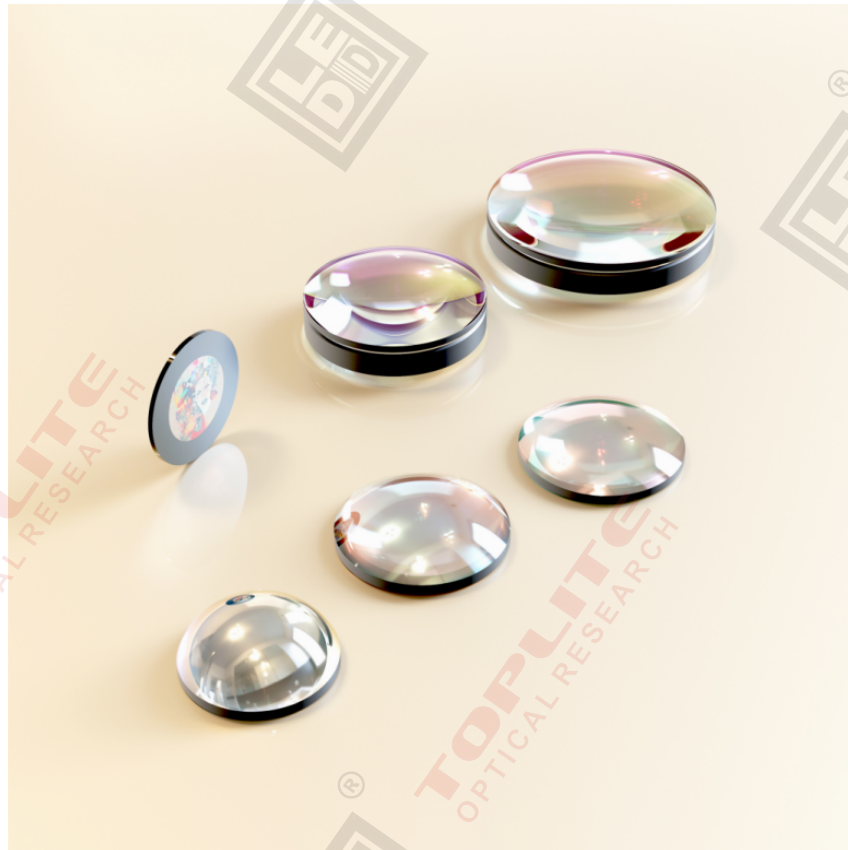
### IMM40

The "IMM40 Imaging Lens Set" includes four different imaging lenses with varying diameters and thicknesses, all are made of special glass materials using high-precision grinding and surface polishing processes. These lenses are coated with multiple layers of high-transmittance film and, through precise bonding, form a low-dispersion lens group with high resolution, offering high-quality imaging.

These lenses can be freely combined and, when used with specific LED light sources and condensing lens sets, can create special optical imaging systems of fixed or variable beam angles. The projected light spots exhibit high clarity, uniform, fullness, distortion less than 1%, and are free from color fringing (like blue, yellow). IMM40 imaging lens set is particularly well-suited for high-definition imaging, pattern projection, profile cutting, and other medium to high-power LED lighting applications.

Applications scope: High-definition LED imaging lights, pattern projection lights, cutting lights, profile spotlighting, and more.

Application Areas: Stage performances, cultural and tourism landscapes, film and video shooting, commercial photography, museums, art galleries, and more.





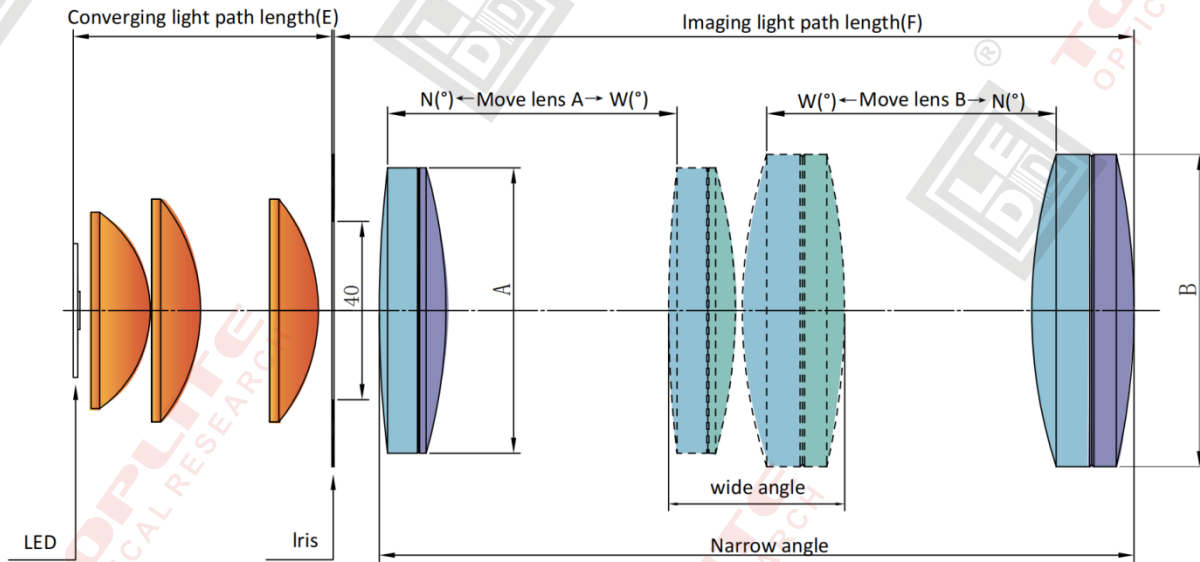
Main Parameters:

Product Model	IMM40		
Product Type	Optical Imaging Lens Set		
LED	High integrated LED or COB, $LES \leq \Phi 8.5\text{mm}$ , LED matrix module, e.g. STONEHENGE, MATBEAM, MATGOBO		
Condensing Lens Set	IMMDX4450X2, lens diameter: $\Phi 44\text{mm}$ , $\Phi 50\text{mm}$ , Used to adapt to single LED, like COB		
Gate (Effective Gobo Size)	$\leq \Phi 40\text{mm}$		
Achromatic Cemented Lens	$\Phi 64\text{mm}$ , $\Phi 70\text{mm}$ , $\Phi 100\text{mm}$		
Coatings	Multi-layer anti-reflection		
Angles	Fixed	8°, 10°, 15°, 19°, 20°, 24°, 25°, 26°, 30°, 36°, 40°	Provide the schematic diagram of the light path for each angle option
	Zoom	08~18°, 08~22°, 09~27°, 11~20°, 11~24°, 11~33°, 12~23°, 12~24°, 13~25°, 13~31°, 13~33°, 13~34°, 15~36°, 15~38°, 16~27°, 16~29°, 18~38°, 20~39°, 20~40°	
Model Description	IMM40-F36, F indicates fixed focus, angle is 36°.		
	IMM40-Z1536, Z indicates zoom, zoom range is 15°~36°.		

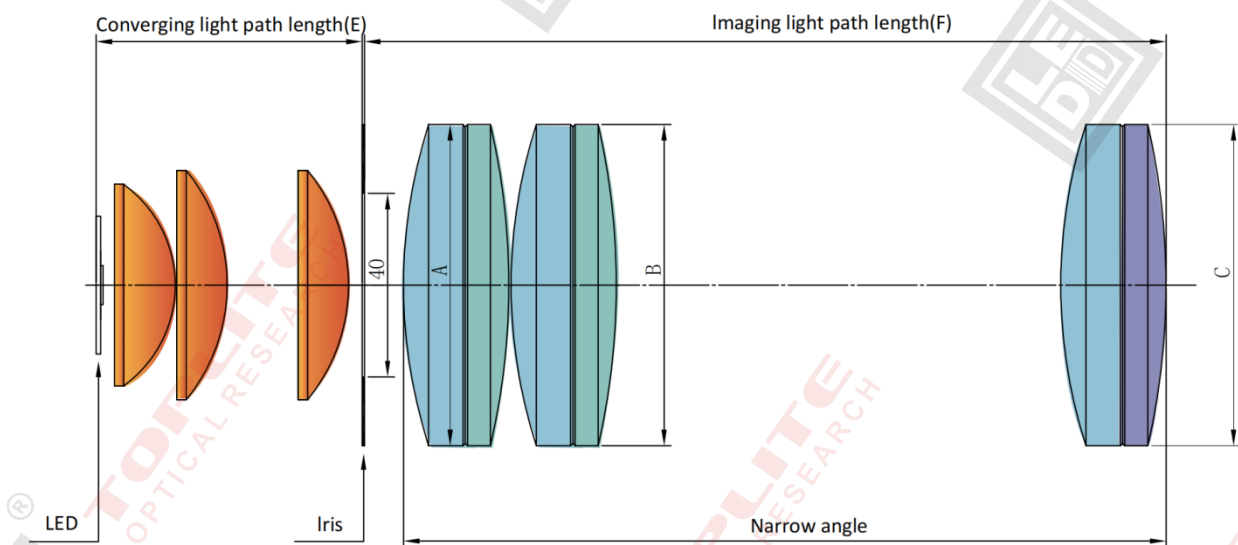
Schematic diagram of imaging light path

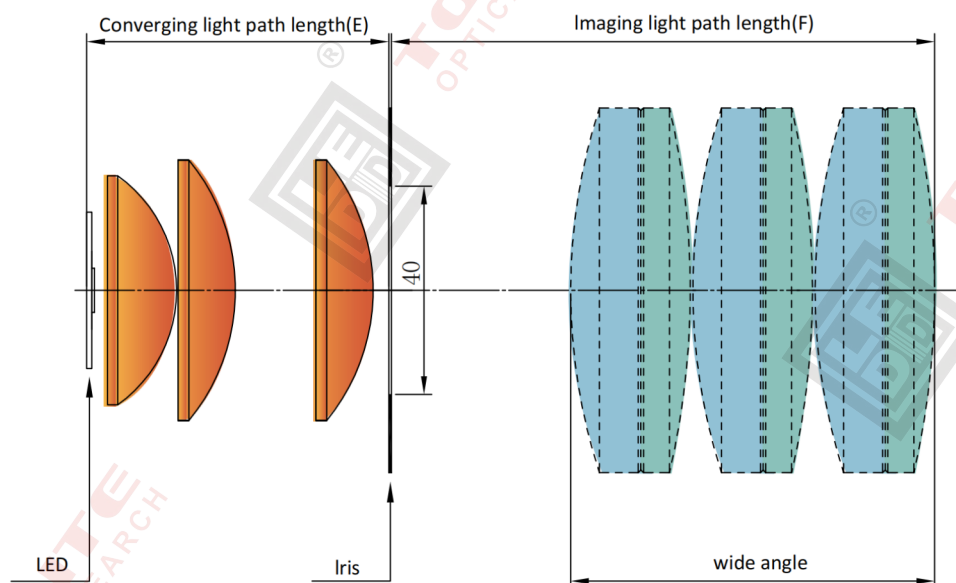
There are two typical variable optical imaging system schematic diagrams are showed here. Each one consists of four parts, from left to right they are, LED, condensing lens set, gate (Gobo), and imaging lens set. The condensing lens set is composed of three plano-convex lenses, and the gate (effective gobo size) is  $\Phi 40\text{mm}$ .

① As shown in the following diagram, the part of imaging lens set consists of two achromatic cemented lenses. This is a zoom system, it output wide beam when two lenses are closing to each other, if the two lenses move away from each other, the output beam will be narrow-angle.



② As shown in the following diagram, the part of imaging lens set consists of three achromatic cemented lenses. We can divide these three lenses into two groups. From left to right, group 1 includes A and B, group 2 is C. This is a zoom system, it output wide beam when two lens groups are closing to each other, if the two lens groups move away from each other, the output beam will be narrow-angle.





#### IMM40 imaging beam angle selection list:

No.	IMM40 Model	Angle (°)	Imaging lens size (mm)			Total light path length: E+F (mm)	
			A	B	C	Condensing lens set: E	Imaging lens set: F
1	IMM40-F8D10070	8	Φ70	Φ100	-	58.1	337
2	IMM40-F10D10070	10	Φ70	Φ100	-	58.1	314
3	IMM40-F15D64X2	15	Φ64	Φ64	-	58.1	196.1
4	IMM40-F15D70X2	15	Φ70	Φ70	-	58.1	205.4
5	IMM40-F15D10070	15	Φ70	Φ100	-	58.1	233.1
6	IMM40-F19D64X2	19	Φ64	Φ64	-	58.1	165.1
7	IMM40-F19D70X2	19	Φ70	Φ70	-	58.1	172.5
8	IMM40-F19D10070	19	Φ70	Φ100	-	58.1	191.1
9	IMM40-F20D64X2	20	Φ64	Φ64	-	58.1	155.1
10	IMM40-F20D70X2	20	Φ70	Φ70	-	58.1	166.5



No.	IMM40 Model	Angle (°)	Imaging lens size (mm)			Total light path length: E+F (mm)	
			A	B	C	Condensing lens set: E	Imaging lens set: F
11	IMM40-F20D10070	20	Φ70	Φ100	-	58.1	180.1
12	IMM40-F24D64X2	24	Φ64	Φ64	-	58.1	115.1
13	IMM40-F24D70X2	24	Φ70	Φ70	-	58.1	142.5
14	IMM40-F24D10070	24	Φ70	Φ100	-	58.1	138.1
15	IMM40-F25D64X2	25	Φ64	Φ64	-	58.1	115.1
16	IMM40-F25D70X2	25	Φ70	Φ70	-	58.1	137.5
17	IMM40-F26D70X2	26	Φ70	Φ70	-	58.1	119.5
18	IMM40-F30D64X3	30	Φ64	Φ64	Φ64	58.1	126.1
19	IMM40-F30D70X3	30	Φ70	Φ70	Φ70	58.1	146.5
20	IMM40-F36D64X3	36	Φ64	Φ64	Φ64	58.1	97.1
21	IMM40-F36D70X3	36	Φ70	Φ70	Φ70	58.1	120.5
22	IMM40-F40D70X3	40	Φ70	Φ70	Φ70	58.1	110.5
23	IMM40-Z0818	8~18	Φ70	Φ100	-	58.1	333
24	IMM40-Z0822	8~22	Φ70	Φ100	-	58.1	330
25	IMM40-Z0927	9~27	Φ70	Φ70	Φ100	58.1	331
26	IMM40-Z1120	11~20	Φ70	Φ100	-	58.1	252.4
27	IMM40-Z1124	11~24	Φ70	Φ100	-	58.1	255.4
28	IMM40-Z1133	11~33	Φ70	Φ70	Φ100	58.1	326.5
29	IMM40-Z1223	12~23	Φ70	Φ70	-	58.1	229.4
30	IMM40-Z1224	12~24	Φ64	Φ70	-	58.1	230.5
31	IMM40-Z1225	12~25	Φ70	Φ70	-	58.1	228.3

No.	IMM40 Model	Angle (°)	Imaging lens size (mm)			Total light path length: E+F (mm)	
			A	B	C	Condensing lens set: E	Imaging lens set: F
32	IMM40-Z1325	13~25	Φ64	Φ64	-	58.1	201.1
33	IMM40-Z1331	13~31	Φ70	Φ70	Φ100	58.1	250.4
34	IMM40-Z1333	13~33	Φ70	Φ70	Φ70	58.1	227.4
35	IMM40-Z1334	13~34	Φ64	Φ64	Φ70	58.1	233.5
36	IMM40-Z1536	15~36	Φ70	Φ70	Φ100	58.1	247.9
37	IMM40-Z1538	15~38	Φ70	Φ70	Φ70	58.1	226.8
38	IMM40-Z1627	16~27	Φ64	Φ70	-	58.1	179.7
39	IMM40-Z1629	16~29	Φ70	Φ70	-	58.1	177.5
40	IMM40-Z1838	18~38	Φ64	Φ64	Φ70	58.1	186.2
41	IMM40-Z2039	20~39	Φ64	Φ64	Φ64	58.1	160.7
42	IMM40-Z2040	20~40	Φ70	Φ70	Φ70	58.1	175

In the above lists, the imaging length F is the maximum imaging length of the system which is the length at the smallest angle value within a zoom range. The condensing part uses a lens set of IMM4450X2. If there is another lens set used in the system for LED focusing, the corresponding E value will change, as shown in the diagram below.

