

EVETAR[®]

Sharper eyes for imaging



МАКО
ГРУПП

Professional Optical Solution Provider

Company Over View

Xiamen Leading Optics Co.,Ltd. is one of the leading designers and manufacturers of camera lenses and keeping providing innovative optical solutions and products to the market. Being stable in huge quantity supplying, Xiamen Leading Optics Co.,Ltd. implements ISO9000, ISO14001, OHSAS18001, IATF16949 quality management systems and equips with advance production facilities, with an area of 30,000 square meters and more than 1000 employees in headquarter.



Sharper Eyes for Security

Wide Range of Optical Products

With strong R&D ability, advanced production equipment and strict QC system, we extend our lens family into a wide range of industrial level Products, covering image formats from 1/9", 1/1.75", 1/4", 1/3", 1/2.8", 1/2.3", 1/1.8", 2/3", 1", 4/3" up to film size.

We Keep launching new lens models for high-definition cameras in many applications, including Day& Night security, IP surveillance, Panoramic security, Video conferencing, Motion capture, Recognition, Sports, Machine Vision / FA, Automotive, Medical, etc.

Customized and Technical Service

As an innovative designer and dedicated manufacturer, we keep providing cost-effective and time-effective optical solutions with technical support to our customers in all aspects from design stage to finished products.

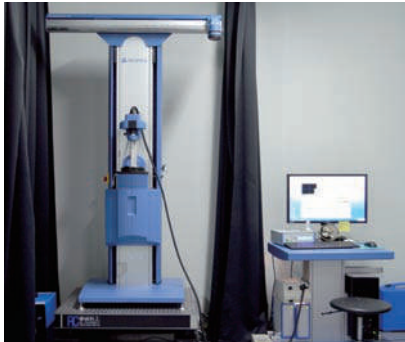


Milestone



Precision Instruments

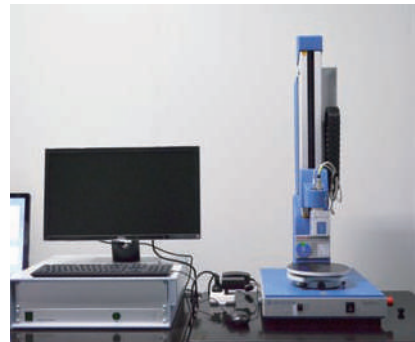
Ultra-Precision Test Equipments



Trioptics image master HR



Trioptics optcentric



Trioptics optisurf instrument



Coordinate measuring machine



UA3P



VGI integrating sphere

Ultra-Precision Production Equipments



Fully-auto Polishing machine



Fully-auto glass centering machine



Fully-auto glass inking machine



Ultra-Precision Production Equipments



Optical thin film coater



Automatic assembly machine



Molding machine

Reliability Test Equipments



Walk-in temperature resistance test



Humidity, temperature and vibration comprehensive environment test



Dust resistance test



IPX9K waterproof test
IPX



Mechanical shock test



Tensile testing

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Zoom Lenses

- Excellent and even MTF performance from center to corner
- IR correction for Day & Night surveillance
- Compact size with short TTL for mini dome
- Motor extended Life 500k cycles
- With aspherical glass

SMP
ASG



1/2.8" f3-9mm F#1.6 3X

FHD
ASG
F1.4



Model No. E5281C

1/2.8" f3-9mm F#1.4 3X

*ASG: Aspherical Glass

Zoom Lenses

5MP

ASG



Model No.	E5350A			
Image Size(inch)	1/2.8"	HFOV(°) (4:3)	1/2.5"	
Focal Length(mm)	3-9		1/2.8"	107-35
Aperture Ratio	1:1.6		1/2.9"	98.8-33
Back Focal Length(mm)	5.13-12.05		1/3"	95.6-32.1
Dimensions(Ø xL)	38 x 43.1	Iris	DC-Iris / P-Iris	
Mount	/	Weight(g)		

FHD

ASG

F1.4



Model No.	E5281C			
Image Size(inch)	1/2.8"	HFOV(°) (4:3)	1/2.5"	
Focal Length(mm)	3-9		1/2.8"	107-35
Aperture Ratio	1:1.4		1/2.9"	98.8-33
Back Focal Length(mm)	5.09-12.05		1/3"	95.6-32.1
Dimensions(Ø xL)	38 x 43.1	Iris	DC Auto	
Mount	/	Weight(g)		

5MP

ASG

F1.2



Model No.	E5229			
Image Size(inch)	1/1.7"	HFOV(°) (4:3)	1/1.7"	104-45.8
Focal Length(mm)	4.4-10		1/1.8"	96-43
Aperture Ratio	1:1.2		1/2"	84-38.5
Back Focal Length(mm)	6.28 - 11.64		1/2.3"	80.4-37
Dimensions(Ø xL)	53 x 50.5	Iris	DC Auto	
Mount	/	Weight(g)		

8MP



Model No.	E5228			
Image Size(inch)	1/1.7"	HFOV(°) (4:3)	1/1.7"	100-45
Focal Length(mm)	4.5-10		1/1.8"	93.5-42.5
Aperture Ratio	1:1.6		1/2"	82-37.9
Back Focal Length(mm)	7.24 - 12.65		1/2.3"	78.6-36.4
Dimensions(Ø xLxW)		Iris	DC Auto	
Mount	/	Weight(g)		

*ASG: Aspherical Glass

Zoom Lenses

MIFZ Lenses

Vari-Focal Lenses

Fixed-Focal Lenses

Panorama Lenses

Low Distortion Lenses

TOF Lenses

ITS Lenses

Terminology

Motorized Zoom and Focus Lenses

- High resolution supporting 3M-4K sensor
- Remote control of zoom and focus, precise iris
- Compact design popular for mini dome and bullet cameras
- IR-correction for day & night surveillance
- Iris Option: Fixed, DC Auto, P-iris



Model No. E5299D

1/2.7" f2.8-6 mm F#2.0 TTL 27.4 (in air)



Model No. E5350C

1/2.8" f3-9mm F#1.6

* ASG: Aspherical Glass

MFZ Lenses

FHD
ASG
F1.4



Model No.	E5281H			
Image Size(inch)	1/2.8"	HFOV(°) (4:3)	1/2.7"	
Focal Length(mm)	3-9		1/2.8"	107-35
Aperture Ratio	1:1.4		1/2.9"	102-34
Back Focal Length(mm)	5.09-12.05		1/3"	96-32
Dimensions(Ø xLxW)	28 x 33.7 x 48.5	Iris	P - iris	
Mount	Ø14	Weight(g)		

5MP
ASG



Model No.	E5350C			
Image Size(inch)	1/2.8"	HFOV(°) (4:3)	1/2.7"	
Focal Length(mm)	3-9		1/2.8"	107-35
Aperture Ratio	1:1.6		1/2.9"	102-35
Back Focal Length(mm)	5.13-12.04		1/3"	96-32
Dimensions(Ø xLxW)	28 x 30.1 x 48.5	Iris	DC Auto	
Mount	Ø14	Weight(g)		

FHD



Model No.	E5299D			
Image Size(inch)	1/2.7"	HFOV(°) (4:3)	1/2.7"	102.9-54.3
Focal Length(mm)	2.8-6		1/2.8"	100-52.9
Aperture Ratio	1:2.0		1/2.9"	93.3-49.8
Back Focal Length(mm)	4.77-7.46		1/3"	90.5-48.4
Dimensions(Ø xLxW)	20 x 29.55 x 36.46	Iris	Fixed	
Mount	/	Weight(g)		

5MP



Model No.	E5201B			
Image Size(inch)	1/2.5"	HFOV(°) (4:3)	1/2.5"	31.2 - 15.6
Focal Length(mm)	10 - 22		1/2.7"	29 - 14.6
Aperture Ratio	1:2.1		1/2.8"	28.3- 14.5
Back Focal Length(mm)	7.64 - 14.1		1/3"	25.8- 13.2
Dimensions(Ø xLxW)	29 x 39.59 x 48.5	Iris	P - iris	
Mount	Ø14	Weight(g)		

*ASG: Aspherical Glass

Zoom Lenses

MFZ Lenses

Vari-Focal Lenses

Fixed-Focal Lenses

Panorama Lenses

Low Distortion Lenses

TOF Lenses

ITS Lenses

Terminology

MFZ Lenses

Zoom Lenses

MFZ Lenses

Vari-Focal Lenses

Fixed-Focal Lenses

Panorama Lenses

Low Distortion Lenses

TOF Lenses

ITS Lenses

Terminology

4K



Model No.	E5246A			
Image Size(inch)	1/2.3"	HFOV(°) (4:3)	1/2.3"	105.3-37.1
Focal Length(mm)	3.5-10		1/2.5"	96.6-34.6
Aperture Ratio	1:1.6		1/2.7"	89-32.3
Back Focal Length(mm)	5.25-11.59		1/2.8"	82.6-31.5
Dimensions(Ø xLxW)	28 × 34.7 × 48.5	Iris		DC Auto
Mount	Ø14	Weight(g)		37.2

5MP



Model No.	E5259B			
Image Size(inch)	1/1.8"	HFOV(°) (4:3)	1/1.8"	33.9-11.5
Focal Length(mm)	12-40		1/2"	30.1-10.3
Aperture Ratio	1:2.2		1/2.3"	28.9-9.9
Back Focal Length(mm)	7.29 - 9.08		1/2.5"	27-9.3
Dimensions(Ø xLxW)	33 x 53 x 51	Iris		P - Iris
Mount	Ø19	Weight(g)		83.2

5MP



Model No.	E5229A			
Image Size(inch)	1/1.7"	HFOV(°) (4:3)	1/1.7"	104-45.8
Focal Length(mm)	4.4-10		1/1.8"	96-43
Aperture Ratio	1:1.2		1/2"	84-38.5
Back Focal Length(mm)	6.28-11.64		1/2.3"	80.4-37
Dimensions(Ø xLxW)	30.2 x 40.2 x 62.33	Iris		P - iris
Mount	Ø19	Weight(g)		47.6

4K



Model No.	E5228A			
Image Size(inch)	1/1.7"	HFOV(°) (4:3)	1/1.7"	101-43
Focal Length(mm)	4.5-10		1/1.8"	93.5-42.5
Aperture Ratio	1:1.6		1/2"	82-37.8
Back Focal Length(mm)	7.24-12.65		1/2.3"	78.6-36.4
Dimensions(Ø xLxW)	30.2 x 39.7 x 51	Iris		P - iris
Mount	Ø19	Weight(g)		43.6

Vari-Focal Lenses

- High resolution supporting 3MP-12MP sensors
- IR-correction for Day & Night surveillance
- Manual, DC Auto iris, P-Iris for option
- Industrial level reliability -30°C ~+80°C

- 4K
- F1.3
- IR
- WDR



Model No. E5369
1/1.7" f10-40mm

- 5MP
- F1.5



Model No. E5394
1/2.8" f3-12mm

- Zoom Lenses
- MFZ Lenses
- Vari-Focal Lenses
- Fixed-Focal Lenses
- Panorama Lenses
- Low Distortion Lenses
- TOF Lenses
- ITS Lenses
- Terminology

Vari-Focus Lenses Low Light

Zoom Lenses

MFZ Lenses

Vari-Focal Lenses

Fixed-Focal Lenses

Panorama Lenses

Low Distortion Lenses

TOF Lenses

ITS Lenses

Terminology

F1.5
5MP



Model No.	E5394A NEW			
Image Size(inch)	1/2.8"	HFOV(°) (4:3)	1/2.7"	
Focal Length(mm)	3-12		1/2.8"	99.5-27.7
Aperture Ratio	1:1.5		1/2.9"	94.6-26.7
Back Focal Length(mm)	7.29-15.79		1/3"	89-25.4
Dimensions(Ø xL)	36.5 x 52.9	Iris		DC Auto
Mount	CS	Weight(g)		

F1.3
4K



Model No.	E5369B NEW			
Image Size(inch)	1/1.7"	HFOV(°) (4:3)	1/1.7"	42-11.4
Focal Length(mm)	10-40		1/1.8"	39.6-10.7
Aperture Ratio	1:1.3		1/2"	35.2-9.6
Back Focal Length(mm)	8.17-9.34		1/2.3"	33.9-9.3
Dimensions(Ø xL)	54 x 95.62	Iris		DC Auto
Mount	C	Weight(g)		

F1.2
5MP
ASG



Model No.	E5229G			
Image Size(inch)	1/1.7"	HFOV(°) (4:3)	1/1.7"	104-45.8
Focal Length(mm)	4.4-10		1/1.8"	96-43
Aperture Ratio	1:1.2		1/2"	84-38.5
Back Focal Length(mm)	6.28-11.64		1/2.3"	80.4-37
Dimensions(Ø xL)	33x41	Iris		DC Auto
Mount	CS	Weight(g)		84.4

F0.9
5MP



Model No.	E5262B			
Image Size(inch)	1/1.8"	HFOV(°) (4:3)	1/1.7"	
Focal Length(mm)	4-12		1/1.8"	104-38
Aperture Ratio	1:0.9		1/2"	90-34
Back Focal Length(mm)	8.56		1/2.3"	86-32.5
Dimensions(Ø xL)	80 x 120.8	Iris		DC Auto
Mount	C	Weight(g)		

*ASG: Aspherical Glass

Vari-Focus Lenses

Zoom Lenses

MFZ Lenses

Vari-Focal Lenses

Fixed-Focal Lenses

Panorama Lenses

Low Distortion Lenses

TOF Lenses

ITS Lenses

Terminology

4K



Model No.	E5260A			
Image Size(inch)	1/1.7"	HFOV(°) (4:3)	1/1.7"	13.8-3.7
Focal Length(mm)	30-120		1/1.8"	13-3.5
Aperture Ratio	1:2.2		1/2"	11.1-3.0
Back Focal Length(mm)	11.77-18.97		1/2.3"	10.4-2.8
Dimensions(Ø xL)	70 x 141	Iris		P - Iris
Mount	C	Weight(g)		

5MP



Model No.	E5259D			
Image Size(inch)	1/1.8"	HFOV(°) (4:3)	1/1.8"	33.9-11.5
Focal Length(mm)	12-40		1/2"	30.1-10.3
Aperture Ratio	1:2.2		1/2.3"	29-9.9
Back Focal Length(mm)	7.29-9.08		1/2.5"	26.9-9.2
Dimensions(Ø xL)	33x53	Iris		DC Auto
Mount	CS	Weight(g)		111.2

5MP



Model No.	E5174C			
Image Size(inch)	1/2.5"	HFOV(°) (4:3)	1/2.5"	37-15.6
Focal Length(mm)	9-22		1/2.7"	34.3-14.6
Aperture Ratio	1:1.8		1/2.8"	33.4-14.2
Back Focal Length(mm)	6.54-14.1		1/3"	30.5-13
Dimensions(Ø xL)	32x38.1	Iris		DC Auto
Mount	CS	Weight(g)		72.6

FHD



Model No.	E5133B			
Image Size(inch)	1/3"	HFOV(°) (4:3)	1/2.5"	
Focal Length(mm)	5-50		1/2.7"	
Aperture Ratio	1:1.6		1/2.8"	
Back Focal Length(mm)	7.6-11.9		1/3"	49.7-5.7
Dimensions(Ø xL)	45 x 65.5	Iris		DC Auto
Mount	CS	Weight(g)		168

Fixed-Focal Lenses

- High resolution supporting 2M-4K sensor
- Compact design for mini dome and bullet cameras
- IR-correction for day & night surveillance
- Mount option: CS / M12x0.5



Model No. E3335

$\phi 5.6$ f1.96mm F#2.2



Model No. E3292N

$\sqrt{2.8}$ " f2.8mm F#2.0



M12 AF Module

5MP-4K Fixed-Focal Lenses 5MP-4K

4K



Model No.	E3400A			
Image Size(inch)	1/2.5"	HFOV(°) (4:3)	1/2.5"	123.3
Focal Length(mm)	2.8		1/3"	101.1
Aperture Ratio	1:2.2		1/3.2"	95.3
Back Focal Length(mm)	5.66		1/4"	74.8
Dimensions(Ø xL)	17 x 19.5	Iris		Fixed
Mount	M12 x 0.5	Weight(g)		

4K



Model No.	E3337A			
Image Size(inch)	1/2.5"	HFOV(°) (4:3)	1/2.5"	91.6
Focal Length(mm)	3.76		1/3"	75.2
Aperture Ratio	1:2.0		1/3.2"	70.9
Back Focal Length(mm)	5.77		1/4"	55.7
Dimensions(Ø xL)	14 x 17.61	Iris		Fixed
Mount	M12 x 0.5	Weight(g)		

4K



Model No.	E3368A			
Image Size(inch)	1/1.8"	HFOV(°) (4:3)	1/1.8"	143
Focal Length(mm)	2.95		1/2"	127
Aperture Ratio	1:2.8		1/2.3"	122
Back Focal Length(mm)	7.09		1/2.5"	113.8
Dimensions(Ø xL)	25 x 28.14	Iris		Fixed
Mount	M12 x 0.5	Weight(g)		

4K



Model No.	E3336B			
Image Size(inch)	1/1.8"	HFOV(°) (4:3)	1/1.8"	151
Focal Length(mm)	3.1		1/2"	122.6
Aperture Ratio	1:1.8		1/2.3"	117.5
Back Focal Length(mm)	4.52		1/2.5"	109.3
Dimensions(Ø xL)	23 x 24	Iris		Fixed
Mount	M12 x 0.5	Weight(g)		

Zoom Lenses

MFZ Lenses

Vari-Focal Lenses

Fixed-Focal Lenses

Panorama Lenses

Low Distortion Lenses

TOF Lenses

ITS Lenses

Terminology

5MP-4K Fixed-Focal Lenses 5MP-4K

Zoom Lenses

MFZ Lenses

Vari-Focal Lenses

Fixed-Focal Lenses

Panorama Lenses

Low Distortion Lenses

TOP Lenses

ITS Lenses

Terminology

4K



Model No.	E3360A			
Image Size(inch)	1/1.8"	HFOV(°) (4:3)	1/1.8"	103
Focal Length(mm)	4		1/2"	92
Aperture Ratio	1:2.0		1/2.3"	88.5
Back Focal Length(mm)	6.5		1/2.5"	82.8
Dimensions(Ø xL)	20 x 26.28	Iris		Fixed
Mount	M12 x 0.5	Weight(g)		

4K



Model No.	E3390A			
Image Size(inch)	1/1.8"	HFOV(°) (4:3)	1/1.8"	114.2
Focal Length(mm)	4		1/2"	98.8
Aperture Ratio	1:2.2		1/2.3"	94.4
Back Focal Length(mm)	6.28		1/2.5"	87.3
Dimensions(Ø xL)	18 x 20.3	Iris		Fixed
Mount	M12 x 0.5	Weight(g)		

4K



Model No.	E3388B			
Image Size(inch)	1/1.8"	HFOV(°) (4:3)	1/1.8"	50.2
Focal Length(mm)	8		1/2"	45.2
Aperture Ratio	1:2.6		1/2.3"	43.6
Back Focal Length(mm)	7.8		1/2.5"	40.9
Dimensions(Ø xL)	22x27.1	Iris		Fixed
Mount	M12x0.5	Weight(g)		

5MP



Model No.	E3196B			
Image Size(inch)	1/1.8"	HFOV(°) (4:3)	1/1.8"	33.6
Focal Length(mm)	12		1/2"	30
Aperture Ratio	1:2.0		1/2.5"	27
Back Focal Length(mm)	6.74		1/3"	22.7
Dimensions(Ø xL)	15 x 19.2	Iris		Fixed
Mount	M12x0.5	Weight(g)		

5MP-4K Fixed-Focal Lenses 5MP-4K

5MP



Model No.	E3401A			
Image Size(inch)	1/1.8"	HFOV(°) (4:3)	1/1.8"	25
Focal Length(mm)	16		1/2"	22.3
Aperture Ratio	1:1.8		1/2.5"	20.1
Back Focal Length(mm)	7.2		1/3"	16.8
Dimensions(Ø xL)	15 x17.94	Iris		Fixed
Mount	M12x0.5	Weight(g)		

5MP



Model No.	E3137B			
Image Size(inch)	1/2"	HFOV(°) (4:3)	1/1.8"	15.9
Focal Length(mm)	25		1/2"	14.3
Aperture Ratio	1:2.4		1/2.5"	13
Back Focal Length(mm)	10.26		1/3"	10.26
Dimensions(Ø xL)	15 x18.72	Iris		Fixed
Mount	M12x0.5	Weight(g)		

5MP



Model No.	E3162B			
Image Size(inch)	1/2"	HFOV(°) (4:3)	1/1.8"	11.7
Focal Length(mm)	35		1/2"	10.5
Aperture Ratio	1:2.5		1/2.5"	9.4
Back Focal Length(mm)	14.3		1/3"	7.8
Dimensions(Ø xL)	20 x 33.4	Iris		Fixed
Mount	M12x0.5	Weight(g)		

8MP



Model No.	E3163B			
Image Size(inch)	1/2"	HFOV(°) (4:3)	1/1.8"	8.2
Focal Length(mm)	50		1/2"	7.3
Aperture Ratio	1:2.5		1/2.5"	6.6
Back Focal Length(mm)	18.38		1/3"	5.5
Dimensions(Ø xL)	25 x 48.8	Iris		Fixed
Mount	M12x0.5	Weight(g)		

Zoom Lenses

MEZ Lenses

Vari-Focal Lenses

Fixed-Focal Lenses

Panorama Lenses

Low Distortion Lenses

TOF Lenses

ITS Lenses

Terminology

2MP-4MP Fixed-Focal Lenses

Zoom Lenses

MFZ Lenses

Vari-Focal Lenses

Fixed-Focal Lenses

Panorama Lenses

Low Distortion Lenses

TOF Lenses

ITS Lenses

Terminology



Model No.	E3375B NEW			
Image Size(inch)	1/2.9"	HFOV(°) (4:3)	1/2.9"	105
Focal Length(mm)	2.15		1/3"	101.4
Aperture Ratio	1:2.3		1/3.2"	97.3
Back Focal Length(mm)	3.35		1/4"	81.3
Dimensions(Ø xL)	14 x13.9	Iris		Fixed
Mount	M12 x 0.5	Weight(g)		



Model No.	E3346C			
Image Size(inch)	1/2.8"	HFOV(°) (4:3)	1/2.8"	130.3
Focal Length(mm)	2.53		1/3"	119.8
Aperture Ratio	1:2.0		1/3.2"	111.8
Back Focal Length(mm)	3.63		1/4"	85.5
Dimensions(Ø xL)	15x17.92	Iris		Fixed
Mount	M12 x 0.5	Weight(g)		



Model No.	E3255A			
Image Size(inch)	1/2.8"	HFOV(°) (4:3)	1/2.8"	132
Focal Length(mm)	2.3		1/3"	120.2
Aperture Ratio	1:2.2		1/3.2"	113.2
Back Focal Length(mm)	4.24		1/4"	88.5
Dimensions(Ø xL)	19.5 x 21.15	Iris		Fixed
Mount	M12 x 0.5	Weight(g)		10.3



Model No.	E3292A			
Image Size(inch)	1/2.8"	HFOV(°) (4:3)	1/2.8"	109.4
Focal Length(mm)	2.8		1/3"	99.5
Aperture Ratio	1:2.0		1/3.2"	93.7
Back Focal Length(mm)	5.55		1/4"	73.5
Dimensions(Ø xL)	14 x16.8	Iris		Fixed
Mount	M12 x 0.5	Weight(g)		5.9

2MP-4MP Fixed-Focal Lenses



Model No.	E3308A			
Image Size(inch)	1/4"	HFOV(°) (4:3)	1/2.7"	
Focal Length(mm)	1.93		1/3"	
Aperture Ratio	1:2.4		1/3.2"	
Back Focal Length(mm)	3		1/4"	110.2
Dimensions(Ø xL)	16x12.24	Iris		Fixed
Mount	M12 x 0.5	Weight(g)		4.6



Model No.	E3164A			
Image Size(inch)	1/3"	HFOV(°) (4:3)	1/2.8"	
Focal Length(mm)	2.1		1/3"	130
Aperture Ratio	1:2.2		1/3.2"	122.3
Back Focal Length(mm)	6.28		1/4"	95.7
Dimensions(Ø xL)	16 x 17.11	Iris		Fixed
Mount	M12 x 0.5	Weight(g)		6.7



Model No.	E3155A			
Image Size(inch)	1/2.8"	HFOV(°) (4:3)	1/2.8"	88.8
Focal Length(mm)	3.7		1/3"	79.1
Aperture Ratio	1:2.5		1/3.2"	73.8
Back Focal Length(mm)	5.66		1/4"	56.3
Dimensions(Ø xL)	M12X10.1	Iris		Fixed
Mount	M12 x 0.5	Weight(g)		2.4



Model No.	E3273A			
Image Size(inch)	1/2.7"	HFOV(°) (4:3)	1/2.7"	123.5
Focal Length(mm)	2.7		1/3"	107.9
Aperture Ratio	1:2.2		1/3.2"	101.2
Back Focal Length(mm)	5.53		1/4"	78.5
Dimensions(Ø xL)	14 x 9.74	Iris		Fixed
Mount	M12 x 0.5	Weight(g)		3.6

Zoom Lenses

MFZ Lenses

Vari-Focal Lenses

Fixed-Focal Lenses

Panorama Lenses

Low Distortion Lenses

TOF Lenses

ITS Lenses

Terminology

Panorama Lenses

- Super-wide angle 180°~ 250° for panorama
- High resolution supporting 2M-4K sensor
- Full lineup for various image frame
- IR-correction for day & night surveillance

12MP
ASG



Model No. E3279A

Φ5.4mm f1.29 mm FOV190°

F-theta distortion:+25.5%



12MP
ASG



Model No. E3267B

Φ4.47mm f1.1 mm FOV250°

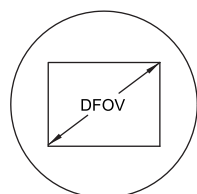
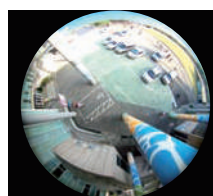
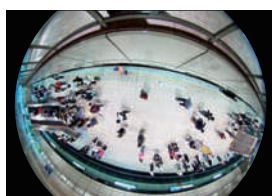
F-theta distortion: -9.2%

*ASG: Aspherical Glass

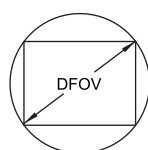
Fisheye Lenses



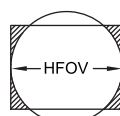
Model No.	Image Circle (mm)	Focal Length (mm)	F-theta Distortion	F No.	Mount	Dimensions (ØxL)	Back Focal Length (mm)	DFOV@ Image Circle(°)	FOV (H x V) (4:3)						Resolution
									1/4"	1/3"	1/2.5"	1/2.3"	1/2"	1/1.8"	
E3285A	2.9	0.9	<-7%	2.0	M12	20x8.84	2.01	200	200x180	200x200	200x200	200x200	200x200	200x200	4MP
E3330B	3	0.83	<-9.7%	2.3	M12	32x26.78	3.51	230	230x220	230x230	230x230	230x230	230x230	230x230	5MP
E3171A	3.2	1.19	<-5.19%	2.0	M12	25x29.83	5.79	180	180x148	180x181	180x182	180x183	180x184	180x185	5MP
E3247K	3.5	1.08	<-7.71%	2.4	M12	26x21.94	3.02	200	200x149	200x200	200x200	200x200	200x200	200x200	4K
E3272B	3.93	1.25	<-6%	2.0	M12	14x9.77	2.75	190	172x125	190x172	190x190	190x190	190x190	190x190	5MP
E3239B	4.05	1.4	<-8%	2.3	M12	14x9.6	2.89	180	156x113	180x156	180x180	180x180	180x180	180x180	2MP
E3197C	4.1	1.58	<-18.2%	2.8	M12	22x24.67	5.92	180	145x102	180x145	180x180	180x180	180x180	180x193	5MP
E3267B	4.47	1.1	<-9.2%	2.4	M12	46x28	2.67	250	191x141	250x191	250x236	250x250	250x250	250x250	4K
E3378A	4.5	1.6	<-10%	2.0	M12	23.5x28.52	4.88	180	137x100	180x137	180x168	180x180	180x180	180x180	4K
E3338B	4.53	1.5	<-9.8%	2.8	M12	20.6x16.26	2.12	190	142x104	190x142	190x175	190x190	190x190	190x190	4K
E3382A	5.2	2.13	<-24.7%	2.0	M12	17.5x20.85	3.9	185	105x76	157x105	185x131	185x148	185x157	185x185	5MP
E3279A	5.4	1.29	<25.5%	2.4	M12	32x26.5	3.9	190	139x110	174x139	190x158	190x168	190x174	190x189	4K
E3335C	5.6	1.96	<-9%	2.2	M12	18x12.5	3.07	180	108x77	147x108	180x129	180x141	180x147	180x171	5MP
E3286E	6.2	2.2	<-17%	2.3	M12	16.2x14.87	4.6	195	97x72	134x97	171x117	193x129	195x134	195x155	5MP
E3307G	6.2	2.2	<-13.3%	2.3	M12	19X14.3	3.79	190	70x93	93x126.7	111x160	121x183	126x195	146x195	4K
E3372B	6.6	2	<-4%	2.3	M12	33.1x27.02	6.11	195	103x77	139x103	167x122	180x132	187x139	195x156	4K
E3402A	7.3	2.3	<-2.3%	2.2	M12	40.5x25.99	6.07	190	91x67	122x91	148x109	158x117	165x122	187x137	4K
E3417A	7.6	2.53	<-9.5%	2.4	M12	25x25.84	5.03	190	82x61	111x82	135x99	146x107	152x111	175x125	4K
E3351A	4.6	1.4	<-1%	1.44	CS	44.5x47.84	6.43	182	142x107	182x142	182x170	182x182	182x182	182x182	5MP
E3153A	7.2	2.29	<-3.4%	1.4	CS	66x64.13	7.78	185	91x68	122x91	146x108	157x116	165x122	183x137	4K



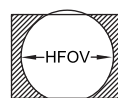
Full Frame "Overfill" (OF)



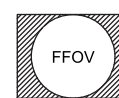
Full Frame (FF)



Full Horizontal (FH)



Partial Frame (PF)



Circular Fisheye (CF)

Zoom Lenses

MFZ Lenses

Vari-Focal Lenses

Fixed-Focal Lenses

Panorama Lenses

Low Distortion Lenses

TOF Lenses

ITS Lenses

Terminology

Low Distortion Lenses

- High definition, low distortion (<-3%)
- High resolution supporting 2-10 Mega-pixel cameras, designed for 1/7.5"-1/1.8" sensors
- Broad band confocal design suitable for complex lighting
- Compact design for integration flexibility
- Widely used in face/iris recognition, barcode scanner, 3D.Tracking, TOF, sorting, robot guidance applications



Low Distortion Lenses



Model No.	E3305A			
Image Size(inch)	1/7.5"	HFOV(°) (4:3)	1/2.5"	
Focal Length(mm)	1.7		1/2.7"	
Aperture Ratio	1:2.4		1/7.5"	61.5
Optical Distortion	<-6.2%	Back Focal Length(mm)		7.55
Dimensions(Ø xLxW)	11.5 X 16.28	Iris		Fixed
Mount	M7 x 0.35	Wavelength		850nm



Model No.	E3253B			
Image Size(inch)	1/4"	HFOV(°) (4:3)	1/2.5"	
Focal Length(mm)	2		1/2.7"	
Aperture Ratio	1:2.8		1/4"	82.7
Optical Distortion	<-4.3%	Back Focal Length(mm)		3.98
Dimensions(Ø xLxW)	12X10.84	Iris		Fixed
Mount	D9	Wavelength		850nm & 940nm



Model No.	E3306A			
Image Size(inch)	1/4"	HFOV(°) (4:3)	1/2.8"	
Focal Length(mm)	14.5		1/3"	
Aperture Ratio	1:4.9		1/4"	12
Optical Distortion	1%	Back Focal Length(mm)		9
Dimensions(Ø xLxW)	9 x 9.73	Iris		Fixed
Mount	M7 x 0.35	Wavelength		850nm



Model No.	E3097C			
Image Size(inch)	1/3"	HFOV(°) (4:3)	1/3"	68
Focal Length(mm)	3.5		1/3.2"	60.2
Aperture Ratio	1:1.9		1/4"	53.5
Optical Distortion	<-2.7%	Back Focal Length(mm)		5.75
Dimensions(Ø xLxW)	22 x 21.87	Iris		Fixed
Mount	M12 x 0.5	Wavelength		VIS & 850nm

Zoom Lenses

MFZ Lenses

Vari-Focal Lenses

Fixed-Focal Lenses

Panorama Lenses

Low Distortion Lenses

TOF Lenses

ITS Lenses

Terminology

Low Distortion Lenses

Zoom Lenses

M/FZ Lenses

Vari-Focal Lenses

Fixed-Focal Lenses

Panorama Lenses

Low Distortion Lenses

TOF Lenses

ITS Lenses

Terminology



Model No.	E3084B			
Image Size(inch)	1/3"	HFOV(°) (4:3)	1/3"	58
Focal Length(mm)	4.5		1/3.2"	55.1
Aperture Ratio	1:1.6		1/4"	44.8
Optical Distortion	<-1.8%	Back Focal Length(mm)		5.8
Dimensions(Ø xLxW)	22 x 22.2	Iris		Fixed
Mount	M12 x 0.5	Wavelength		VIS & 850nm



Model No.	E3149B			
Image Size(inch)	1/3"	HFOV(°) (4:3)	1/3"	49.5
Focal Length(mm)	6		1/3.2"	47
Aperture Ratio	1:2.0		1/4"	37.8
Optical Distortion	<-2.8%	Back Focal Length(mm)		6.27
Dimensions(Ø xLxW)	15 x 17.03	Iris		Fixed
Mount	M12 x 0.5	Wavelength		VIS & 850nm



Model No.	E3230A			
Image Size(inch)	1/3"	HFOV(°) (4:3)	1/3"	27.8
Focal Length(mm)	9		1/3.2"	26.4
Aperture Ratio	1:5.0		1/4"	21.1
Optical Distortion	<-1%	Back Focal Length(mm)		8
Dimensions(Ø xLxW)	14 X 13	Iris		Fixed
Mount	M12 x 0.5	Wavelength		VIS & 850nm



Model No.	E3409A NEW			
Image Size(inch)	1/2.7"	HFOV(°) (4:3)	1/2.7"	18.8
Focal Length(mm)	15		1/2.8"	18.4
Aperture Ratio	1:2.8		1/3"	17
Optical Distortion	<+3.5%	Back Focal Length(mm)		5.31
Dimensions(Ø xLxW)	9 x 9.93	Iris		Fixed
Mount	M8 x 0.35	Wavelength		850nm&940nm

Low Distortion Lenses



Model No.	E3098B			
Image Size(inch)	1/2.5"	HFOV(°) (4:3)	1/2.5"	78
Focal Length(mm)	3.5		1/2.8"	72.8
Aperture Ratio	1:1.8		1/3"	68.1
Optical Distortion	<-2.7%	Back Focal Length(mm)		5.74
Dimensions(Ø xLxW)	24 x 21.47	Iris		Fixed
Mount	M12 x 0.5	Wavelength		VIS & 850nm



Model No.	E3096B			
Image Size(inch)	1/2.5"	HFOV(°) (4:3)	1/2.5"	65
Focal Length(mm)	4.5		1/2.8"	62.1
Aperture Ratio	1:1.8		1/3"	57.8
Optical Distortion	<-1.7%	Back Focal Length(mm)		6.03
Dimensions(Ø xLxW)	24 x 23.16	Iris		Fixed
Mount	M12 x 0.5	Wavelength		VIS & 850nm

10MP



Model No.	E3297B			
Image Size(inch)	1/2.3"	HFOV(°) (4:3)	1/2.3"	96
Focal Length(mm)	2.7		1/2.5"	91.9
Aperture Ratio	1:2.3		1/3"	81.5
Optical Distortion	<-6.4%	Back Focal Length(mm)		3.98
Dimensions(Ø xLxW)	18 x 24.2	Iris		Fixed
Mount	M12 x 0.5	Wavelength		VIS

10MP



Model No.	E3413A			
Image Size(inch)	1/2.3"	HFOV(°) (4:3)	1/2.3"	60
Focal Length(mm)	5.4		1/2.5"	56.7
Aperture Ratio	1:2.5		1/2.7"	53.4
Optical Distortion	<-1.64%	Back Focal Length(mm)		6.41
Dimensions(Ø xLxW)	14 x 18.74	Iris		Fixed
Mount	M12 x 0.5	Wavelength		VIS & 850nm

Zoom Lenses

MFZ Lenses

Vari-Focal Lenses

Fixed-Focal Lenses

Panorama Lenses

Low Distortion Lenses

TOF Lenses

ITS Lenses

Terminology

Low Distortion Lenses

Zoom Lenses

MFZ Lenses

Vari-Focal Lenses

Fixed-Focal Lenses

Panorama Lenses

Low Distortion Lenses

TOF Lenses

ITS Lenses

Terminology

10MP



Model No.	E3183B			
Image Size(inch)	1/2.3"	HFOV(°) (4:3)	1/2.3"	47.3
Focal Length(mm)	7.2		1/2.5"	44.5
Aperture Ratio	1:2.4		1/2.7"	41.7
Optical Distortion	<-2%	Back Focal Length(mm)		6.97
Dimensions(Ø xLxW)	19 x 26.14	Iris		Fixed
Mount	M12 x 0.5	Wavelength		VIS & 850nm



Model No.	E3189B			
Image Size(inch)	1/2"	HFOV(°) (4:3)	1/2"	84.2
Focal Length(mm)	3.5		1/2.5	78.2
Aperture Ratio	1:2.4		1/3"	68
Optical Distortion	<-3.1%	Back Focal Length(mm)		6.09
Dimensions(Ø xLxW)	30 x 29.5	Iris		Fixed
Mount	M12 x 0.5	Wavelength		VIS & 850nm



Model No.	E3348A			
Image Size(inch)	1/1.8"	HFOV(°) (4:3)	1/1.8"	78.7
Focal Length(mm)	4.5		1/2"	72.3
Aperture Ratio	1: 2.2		1/2.5"	66.4
Optical Distortion	<-4.1%	Back Focal Length(mm)		7.18
Dimensions(Ø xLxW)	29 x 30.09	Iris		Fixed
Mount	M12 x 0.5	Wavelength		VIS & 850nm

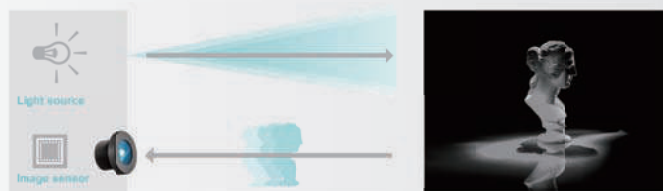


Model No.	E3102B			
Image Size(inch)	1/1.8"	HFOV(°) (4:3)	1/1.8"	65.1
Focal Length(mm)	5.5		1/2"	59.3
Aperture Ratio	1:1.8		1/2.3"	57.4
Optical Distortion)	<-2%	Back Focal Length(mm)		6.86
Dimensions(Ø xLxW)	24 x 23.2	Iris		Fixed
Mount	M12 x 0.5	Wavelength		VIS & 850nm

TOF Lenses

TOF

- 1/2" f2.95mm, f3.7mm, f5.3mm, f11.3mm for option
- Covering 1/2", 1/2.7", 1/3", 1/4"... different TOF sensors
- Optimized for 800-1000nm, supporting 850nm & 940nm application
- Big aperture, anti-flare, high resolution for NIR



Zoom Lenses

MFZ Lenses

Vari-Focal Lenses

Fixed-Focal Lenses

Panorama Lenses

Low Distortion Lenses

TOF Lenses

ITS Lenses

Terminology

TOF Lenses

Zoom Lenses

MFZ Lenses

Vari-Focal Lenses

Fixed-Focal Lenses

Panorama Lenses

Low Distortion Lenses

TOF Lenses

ITS Lenses

Terminology

F1.1

ASG



Model No.	A320			
Image Size(inch)	1/2"	HFOV(°) (4:3)	1/2"	125
Focal Length(mm)	2.95		1/2.3"	120.3
Aperture Ratio	1:1.1		1/2.5"	112
Optical Distortion	1.6%	Back Focal Length(mm)		4.88
Dimensions(Ø xLxW)	8 x 8	Iris		Fixed
Mount	M16	Wavelength		800-1000nm

F1.4

ASG



Model No.	E3325A			
Image Size(inch)	1/2"	HFOV(°) (4:3)	1/2"	108
Focal Length(mm)	3.7		1/2.3"	102.8
Aperture Ratio	1:1.3		1/2.5"	94.7
Optical Distortion	<-69.3%	Back Focal Length(mm)		7.01
Dimensions(Ø xLxW)	17 x 12.43	Iris		Fixed
Mount	M12 x 0.5	Wavelength		800-1000nm

F1.2

ASG



Model No.	E3397A			
Image Size(inch)	1/2"	HFOV(°) (4:3)	1/2"	67.3
Focal Length(mm)	5.3		1/2.3"	65
Aperture Ratio	1:1.2		1/2.5"	60.8
Optical Distortion	-14%	Back Focal Length(mm)		3.83
Dimensions(Ø xLxW)	20 x 22.88	Iris		Fixed
Mount	M14	Wavelength		800-1000nm

F1.4

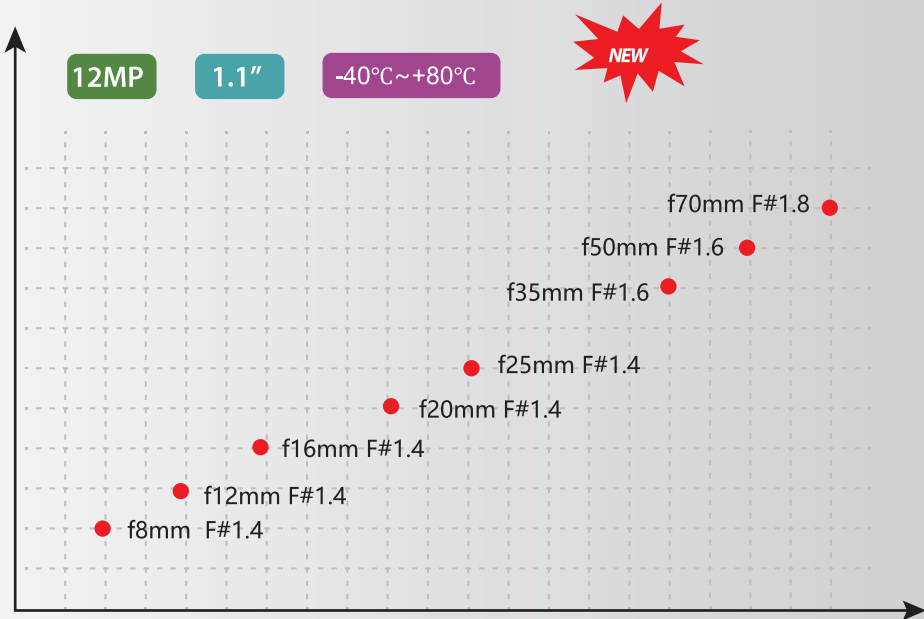


Model No.	E3343A			
Image Size(inch)	1/2"	HFOV(°) (4:3)	1/2"	31.2
Focal Length(mm)	11.3		1/2.5"	28.2
Aperture Ratio	1:1.4		1/3"	23.7
Optical Distortion	<2.1%	Back Focal Length(mm)		5.96
Dimensions(Ø xLxW)	22x 13.65	Iris		Fixed
Mount	M12 x 0.5	Wavelength		800-1000nm

*ASG: Aspherical Glass

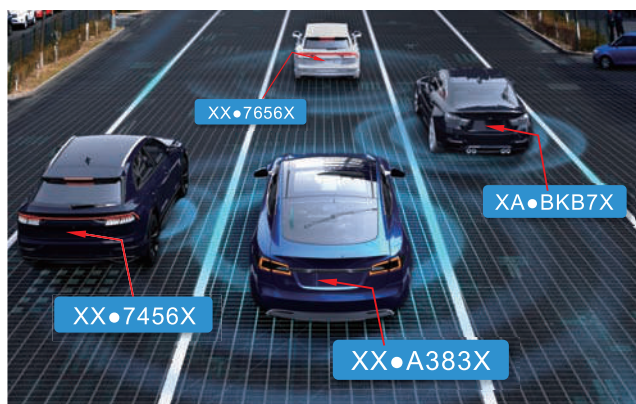
ITS Lenses

- Ultra-high resolution up to 12 Mega-pixel
- Low distortion image quality with good corner brightness
- Large image format for ITS and standard surveillance applications
- Precise iris scales for aperture adjustment
- Popular for ANPR (LPR) applications
- Motorized & Manual option for focus and iris



- Zoom Lenses
- MFZ Lenses
- Vari-Focal Lenses
- Fixed-Focal Lenses
- Panorama Lenses
- Low Distortion Lenses
- TOF Lenses
- ITS Lenses**
- Terminology

ITS Lenses



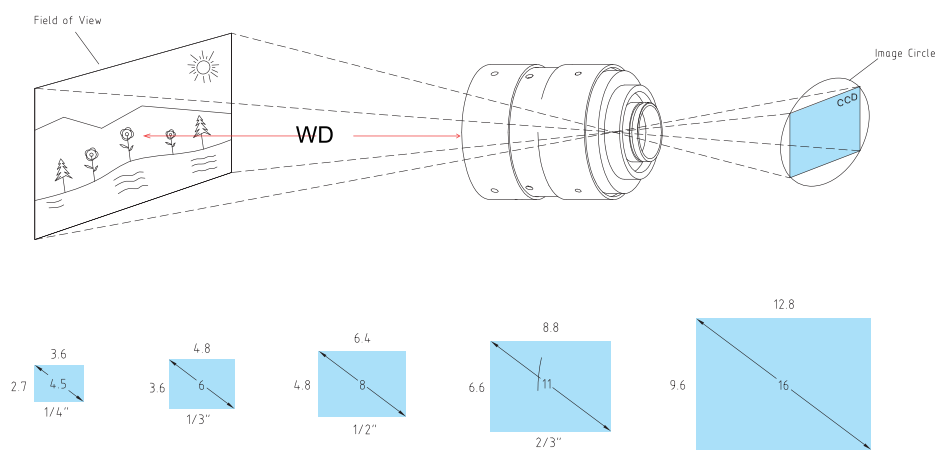
Model No.		E3410A	E3334A	E3385A	E3420A	E3257C
Format(inch)		1/1.8"	2/3"	1"	1.1"	4/3"
Focal Length (mm)		8mm	75mm	75mm	12mm	35mm
Aperture Ratio		1:1.4	1:2.4	1:2.8	1:1.4	1:2.0
Mount		C	C	C	C	C
M.O.D.		0.5m	1.0m	1.0m	0.5m	0.8m
Operation	Focus	Manual	Motor	Motor	Manual	Motor
	Iris	Manual	Motor	Motor	Manual	Manual
FOV (HxV) (4:3)	4/3"					29.2 x 22.0
	1.1"				61.6 x 47.5	22.8 x 17.1
	1"			9.7 x 7.3	56.6 x 43.5	20.7 x 15.6
	2/3"		6.7 x 5.0	6.7 x 5.0	40.0 x 30.3	14.3 x 10.7
	1/1.8"	46.4 x 35.5	5.5 x 4.1	5.5 x 4.1	32.9 x 24.8	11.7 x 8.7
	1/2"	41.8 x 31.9	4.9 x 3.7	4.9 x 3.7	29.4 x 22.2	10.4 x 7.8
Back Focal Length (mm)		9.75mm	17.9mm	16.5mm	11.4mm	22.3mm
Filter Thread Size		27 x 0.5	No	34 x 0.5	No	M43 x 0.75
Dimensions (Φ×L)mm		35 x 38.49	38.4 x 64.06	36 x 60.56	58 x 79.36	52.5 x 99.94
IR Correction		No	Yes	No	No	Yes

※ 1.1" 16mm、20mm、25mm、35mm、50mm、70mm are coming soon.

Terminology

Image Sizes

There are several types of imaging sensors with different image sizes for CCTV cameras, the aspect ratio of CCTV camera is normally 4:3 (H:V). The size of camera's imaging sensor affects the angle of view, with the smaller sensors creating narrower angles of view when used on the same lens. The format of the lens, however is not related to the angle of view, it merely needs to project an image which will cover the sensor, i.e., the same format of the camera or large. This also means that 1/3" cameras can use the entire range of lenses from 1/3" to 1", for example, a 1/3" 12mm lens gives the same angle of view as a 2/3" 12mm lens does. The latter combination also provides increased resolution and picture quality as only the centre of the lens is being used, where the optics can be ground more accurately.



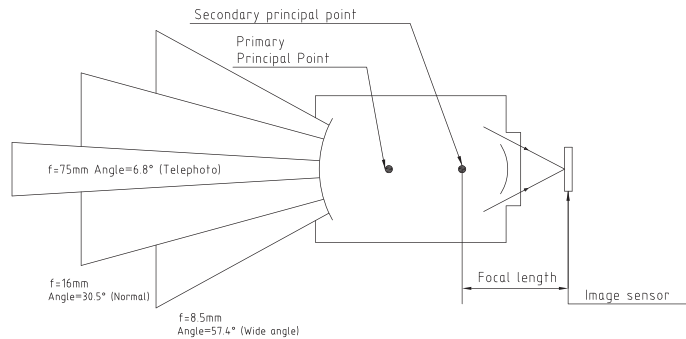
Focal Length

Rays from infinite distance objects are condensed internally in the lens at a common point on the optical axis. The point at which the image sensor of the CCTV camera is positioned, is called a focal point. By virtue of design, lenses have 2 principal points, a primary principal point & a secondary principal point, the distance between the secondary principal point and the focal point (image sensor) determines the focal length of the lens.

- Zoom Lenses
- MFZ Lenses
- Vari-Focal Lenses
- Fixed-Focal Lenses
- Panorama Lenses
- Low Distortion Lenses
- TOF Lenses
- ITS Lenses
- Terminology

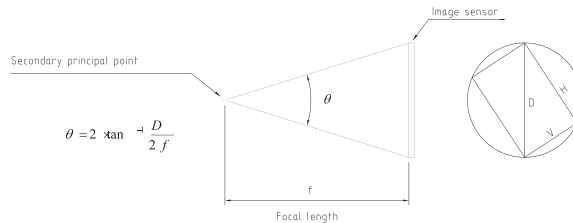
Terminology

The focal length of a lens is measured in mm and directly relates to the angle of view that will be achieved. Short focal length provides wide angle of view and long focal length becomes telephoto, with narrow angle of view.



Angle of View

The angle formed by the 2 lines from the secondary principal point to the edges or corners of image sensor is called the angle of view. Theoretically, the focal length of a lens is fixed regardless of the image size of the CCTV camera. Conversely, the angle of view varies according to the change of image size. For a certain image size, the angle of view will increase when the focal length becomes shorter. The focal lengths in the catalog are nominal and the angles of view calculated by the formula referring to the focal lengths are approximate.



Terminology

Aperture (F No.)

Aperture is an index for the amount of light that passes through a lens. The value of the aperture is represented by the F No., the smaller the number, the greater the amount of light, and the brighter the image generated by the lens. The F No. is inversely proportional to the entrance pupil diameter of the lens and directly proportional to the focal length. Its formula is as follows:

$$F \text{ No.} = f / D \text{ (f: focal length, D = Entrance pupil diameter)}$$

Auto Iris and Manual Iris

There are three types of operation for lens iris, that is, (1) DC drive auto iris; (2) Video drive auto iris and, (3) Manual iris. For DC drive type, the iris is controlled by the circuit inside the camera; for Video drive type, the iris is equipped with an amplifier inside and is operated by the Video signal and DC power supply from the camera; for Manual type, the iris is manually adjusted over the adjusting ring on the lens.

M.O.D.

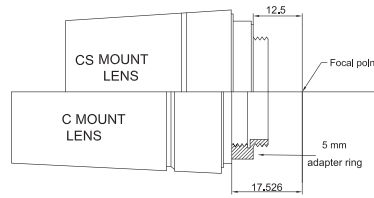
The M.O.D. (minimum object distance) is the closest distance from the vertex of the front lens to the



Terminology

CS and C Mount

The CS-mount lens has the flange back distance of 12.5mm. The C-mount lens has the flange distance of 17.5mm. The CS mount lens is only applicable to the CS mount camera, but the C mount lens is fit for both C mount and CS mount cameras as long as a 5mm Adapter Ring is used to match the CS mount camera.

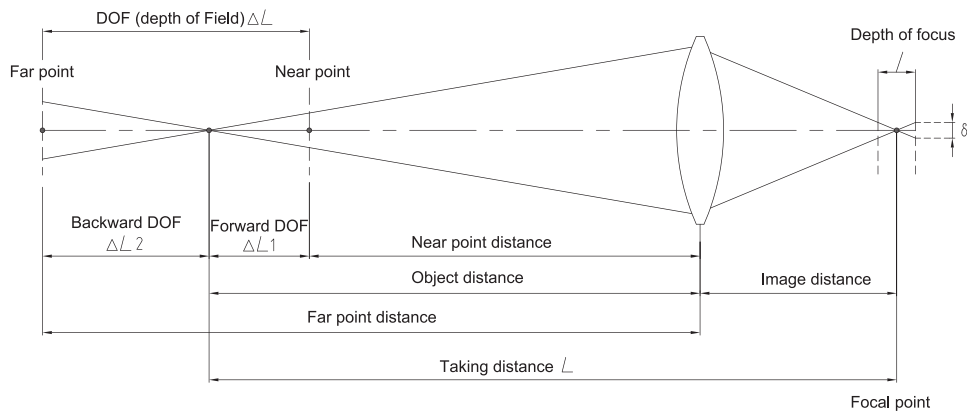


	C Mount Lens	CS Mount Lens
C Mount Camera	○	×
CS Mount Camera	Needs 5mm adapter ring	○

Depth of Field

The depth of field refers to the area within the field of view which is in focus. A large depth of field means that a large percentage of the field of view is in focus. A small depth of field means only a small section of the field of view is in focus. The depth of field is of following properties.

- 1)The larger the F No. is, the wider the depth of field becomes.
- 2)The shorter the focal length is, the wider the depth of field becomes.
- 3)The longer the distance to the object is, the wider the depth of field becomes.
- 4)The backward depth of field is wider than the forward depth of field.



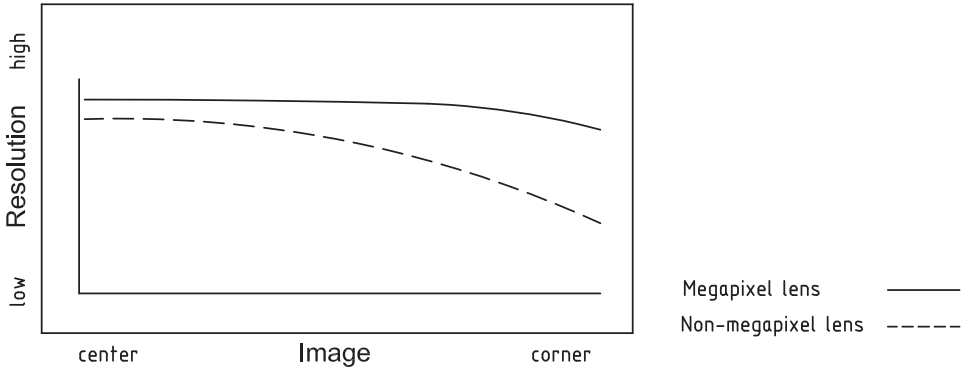
Zoom Lenses
MFZ Lenses
Vari-Focal Lenses
Fixed-Focal Lenses
Panorama Lenses
Low Distortion Lenses
TOF Lenses
ITS Lenses
Terminology

Megapixel

CCD and CMOS image sensors use a series of pixels arranged on a 2 dimensional grid. These pixels convert an optical image to an electronic signal. The number of pixels in an image usually defines the resolution, more pixels means higher resolutions. A megapixel is defined as one million pixels, while camera with a megapixel sensor is called a megapixel camera.

Megapixel lens for megapixel camera

To achieve the full resolution of a megapixel camera, it is essential to use a high quality megapixel lens. Overall image quality is greatly affected by the quality of the optical image shot onto the image sensor. Megapixel lenses provide high contrast, brightness and sharpness across the entire image plane. Non-megapixel lenses will not fully display the resolution of megapixel sensor, especially in the corner area of the image.



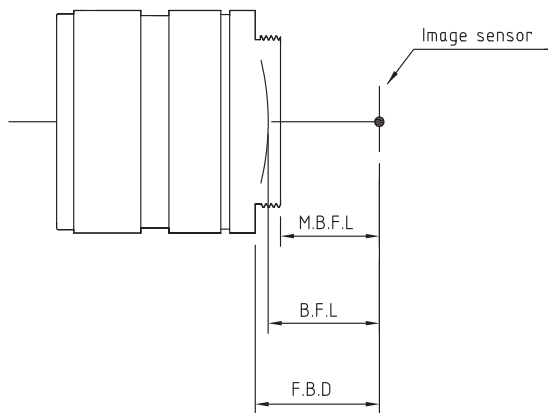
Terminology

Flange Back Distance, Back Focal Length, Mechanical Back Focal Length

Flange back distance is the distance between the lens flange and the sensor focal plane.

Back focal length is the distance between the vertex of the rear lens element and the sensor focal plane.

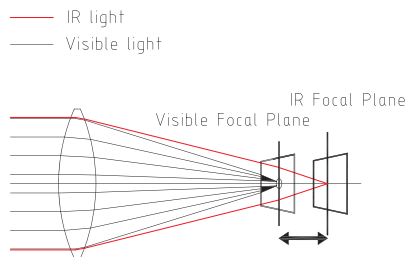
Mechanical Back Focal Length is the distance between the surface of the lens frame and the sensor focal plane.



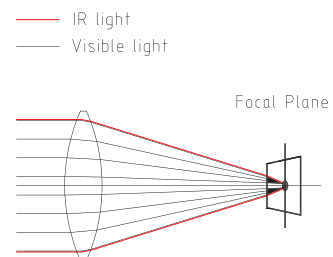
Non IR Lens vs IR Lens

Day & Night cameras are normally used in near-infrared (NIR) or infrared (IR) at night. If we use a Non IR lens with a day & night camera, the image will be out of focus (shifting) at night. Our special optical designs with broad band co-focusing technology based on special glass material minimize light dispersion. As a result, refocusing is not required when the camera is used under NIR or IR. The special design makes the lens to deliver perfect focusing either under visible light or under IR illumination circumstances.

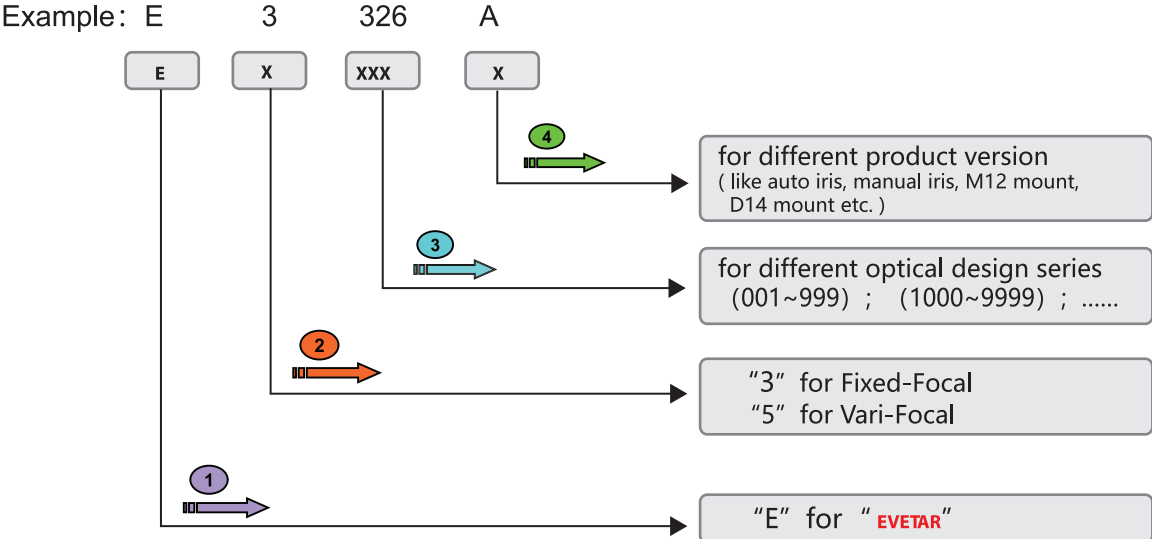
■ Non IR Lens



■ IR Lens



Model Name Coding Rule



Terminology
ITS Lenses
TOF Lenses
Low Distortion Lenses
Panorama Lenses
Fixed-Focal Lenses
Vari-Focal Lenses
MFZ Lenses
Zoom Lenses



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