

# Picking Lenses and Sensors

Model	Resolution	Pixel Size	Sensor Area	Ratio	Sensor Size
OV2640	1600 x 1200	2.2um x 2.2um	3590um x 2684um	1.337	1/4"
OV5640	2592 x 1944	1.4um x 1.4um	3673um x 2738um	1.3414	1/4"
OV4689	2688 x 1520	2.0um x 2.0um	5440um x 3072um	1.7708	1/3"
OV2735	1080p	3.0um x 3.0um	5808um x 3288um	1.7662	1/2.7" Package: 6956um x 4765um
OV2732	1080p	2.0um x 2.0um	3868um x 2190um	1.7662	1/4"
OV2718	1080p	2.8um x 2.8um	5482um x 3202um	1.7230	1/2.9"
OV2740	1080p	1.4um x 1.4um	2729um x 1550um	1.7606	1/6" Lens chief ray angle: 33deg
AR0237	1080p 60fps	3.0um x 3.0um		1/2.7"	HiSPI ?, 3D support, slave support, 4x4 RGB-IR, AR0237IRSH12SHRA0-DR

## Lens Requirements

We are looking for a lens for a dual camera system. Lens alone or Lens + Base.

- Horizontal FoV Angle: 110 - 125 deg
- Aperture/Focal: F2.0/4.3mm (or effective range 20cm - 200cm)
- Socket: M7 or M8
- TTL limit: 15 mm, ideally 10 mm
- Sensor lens size: 1/4" - 1/3"
- [Fuzhou Chuangan](#)
- [F1.8 M12 mount 3.6mm fixed iris lens for 1/3" OV4689](#)

Pinhole. 140 deg FoV. 1/2.5" sensor. Max 14mm TTL. Ideal focus range 20cm - 200cm. I think F2.0/4.3mm works.

<https://dofsimulator.net/en/>

<https://www.photopills.com/calculators/dof>

The New A-25H-D0 Variable Focus Liquid Lens [https://www.corning.com/worldwide/en/products/advanced-optics/product-materials/corning-varioptic-lenses/A-25H-D0\\_variable\\_focus\\_liquid\\_lens.html](https://www.corning.com/worldwide/en/products/advanced-optics/product-materials/corning-varioptic-lenses/A-25H-D0_variable_focus_liquid_lens.html) The new A-25H-D0 liquid lens keeps the same clear aperture (2.5mm) but features a wider dynamic range (70D vs. 18D)

### Lens requirement

- Perfect focus 25cm - 100cm distance
- Decent focus 20cm - 400cm
- Resolution 3MP
- Sensor size 1/2.5"
- Aperture 2.4
- DFOV 140°+
- M8 or M12.

### Lens holder base requirement

- low profile
- M8 or M12
- Space for 9mm x 9mm physical sensor size
- TTL ~14 mm
- No ears (ideally)

Working assumption:

Aimed at OV2732

Hyperfocal distance 31cm DoF near limit 24cm

Firefly FOV D70°H62°V38°

## Lenses for testing

Model	Manufactur.	Res.	Type	Mount	Sensor	HFoV	Aperture	Focal	Bk Focal	Optcl In	M.O.D	Dimensions / Weight
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Model	Manufactur.	Res.	Type	Mount	Sensor	HFoV	Aperture	Focal	Bk Focal	Optcl In	M.O.D	Dimensions / Weight
M12-1.56MM-5MP	TREEYE	5.0MP	Fisheye	M12x0.5	1 / 2.5"	185°	F2.0	1.56mm	4.3mm	20.7mm	0.1m	Dia. 20* 16mm, 12g, \$5, IR
M12-2.1MM-5MP-B	TREEYE	5.0MP	Fisheye	M12	1 / 2.5"	160°	F2.0	2.1mm	6.9mm	20.7mm	0.2m	Φ17.517.5, 8g, \$4.2
	AIRFORTH	? MP	Wide	M8	1 / 3"	160°		2.1mm				Racing Drone \$3.75
MTV-0368BF127M7	Lenspro	2 MP	Semi Wide	M7	1 / 2.7"	97°	F2.8	3.68mm	2.01mm		0.3m	TTL 9.9mm, Φ10x8.6mm, ~9%, FoV 97°/86.5°/50.5°
FS2825SCBP	Focusafe	? MP	Pinhole	M12x0.5	1 / 3"	125°	F2.5	2.8mm			0.3m	F.O.V. 125°82°56°
FS3725SBP	Focusafe	? MP	Ph. screw	M12x0.5	1 / 3"	92°	F2.5	3.7mm			0.2m	5g
FS3725CBP	Focusafe	? MP	Pinhole	M12x0.5	1 / 3"	(95)°	F2.5	3.7mm			0.3m	6*7.54(mm)
CCL127028PMP	TOWIN	3 MP	Pinhole	M12x0.5	1 / 2.7"	108°	F2.4	2.8mm			0.2m	TTL 12, F.O.V. 140°(D)
CA1304A	ChuangAn	MP	Wide	M8x0.35	1 / 2.7"	105°	F2.4	3.53mm	5.26mm			55° *105° 138° 10L9.97mm 5G TTL 14
CA1308C	ChuangAn	MP	Wide	M8x0.5	1 / 4"	115°	F2.4	2mm	4.10mm			87° *115° 170° 12L10.57mm
CA1300I	ChuangAn		Wide	M7*P0.35	1 / 2.5"	115°	F2.4	2.92mm	5.26mm		0.1m	TTL:13.97mm, 71° *115° 145°, 10L10.33mm, 5G+IR
FS2328B13M8	Focusafe	MP	Wide	M8*0.5	1 / 3"	115°	F2.8	2.3mm	5.09mm			Flange back 4.5mm, max image circle 6.4mm
HK-8244-1042-1	Guangtongd.	MP	Wide	M12*P0.5	1 / 2.7"	120°	F1.8	3.0mm	6.04mm			Flange back 5.2mm, 6G+IR
HK-8189-823-1	Guangtongd.	MP	Wide	M12*P0.5	1 / 2.7"	114°	F2.0	3.0mm	5.98mm			Flange back 5.08mm, 6G+IR
JSD2157	JSD	5 MP	Wide	M12x0.5	1 / 2.7"	148°	F2.0	2.35mm	4.54mm			6G, TTL 22mm, Lens diameter 17mm
JSD1529-A1	JSD	MP	Wide	M7*P0.35	1 / 2.7"	124°	F2.0	2.8mm	2.61mm			Diameter 10mm, TTL 11.51mm
TS-2314T-A10	TeSoo	MP	Fishey	M7*P0.35	1 / 2.3"	200°	F2.0	1.8mm				Diameter 10mm, TTL 14mm
CW-BL2120-3MP	CWLENS	3MP	Wide	M12*P0.5	1 / 3"	115°	F2.0	2.1mm	5.3mm?			Diameter 14mm, TTL 15.8mm ?
CW-BL2818-3MP-C	CWLENS	3MP	Wide	M12*P0.5	1 / 2.7"	112°	F2.0	2.8mm	5.7mm?			Diameter 14mm, TTL 15.3mm ?

- <https://www.lensprocctv.com/3-68mm-M7-CCTV-Lens-Low-Distortion-OV2710-p.html>
- [https://chancctv.en.alibaba.com/product/60534477516-804927292/1\\_4\\_2mm\\_Board\\_Lens\\_with\\_DFOV\\_170\\_degree\\_Minature\\_M8\\_Lens.html](https://chancctv.en.alibaba.com/product/60534477516-804927292/1_4_2mm_Board_Lens_with_DFOV_170_degree_Minature_M8_Lens.html)
- [https://www.alibaba.com/product-detail/Element-6G-IR-aluminum-glass-plastic\\_60857424830.html?spm=a2700.wholesale.0.0.55ba6f04EWTHa0](https://www.alibaba.com/product-detail/Element-6G-IR-aluminum-glass-plastic_60857424830.html?spm=a2700.wholesale.0.0.55ba6f04EWTHa0)
- [https://www.alibaba.com/product-detail/m12-mount-OV2735-hd-wide-angle\\_62351098002.html?spm=a2756.order-detail-ta-bn-b.0.0.486a2fc23vZisF](https://www.alibaba.com/product-detail/m12-mount-OV2735-hd-wide-angle_62351098002.html?spm=a2756.order-detail-ta-bn-b.0.0.486a2fc23vZisF)
- [https://www.alibaba.com/product-detail/m7-lens-camera-F2-0-diagonal\\_60302931327.html?spm=a2700.wholesale.0.0.2edffc19WUBCbz](https://www.alibaba.com/product-detail/m7-lens-camera-F2-0-diagonal_60302931327.html?spm=a2700.wholesale.0.0.2edffc19WUBCbz)
- <https://www.towinlens.com/product/ccl127028pmp>
- [https://gtd.en.alibaba.com/product/62069107306-807693421/Element\\_6G\\_IR\\_back\\_focal\\_length\\_BFL\\_5\\_98mm\\_lens\\_for\\_cars.html](https://gtd.en.alibaba.com/product/62069107306-807693421/Element_6G_IR_back_focal_length_BFL_5_98mm_lens_for_cars.html)

- [http://www.cwlens.com/en/pd.jsp?id=152#\\_pp=0\\_330\\_6](http://www.cwlens.com/en/pd.jsp?id=152#_pp=0_330_6)

#### Best configs

Focusafe FS2328B13M8 M80.5, 1/3", 115°, hyperfocal distance = 63 cm JSD JSD2157 M12x0.5, 1/2.7", 148°, hyperfocal distance = 92 cm CW-BL15620-5MP, M12x0.5, 1/3", 185°, hyperfocal distance = 40 cm TeSoo TS-2314T-A10, M7P0.35, 1/2.3", 200°, hyperfocal distance = 54 cm

#### Lens holders for prototyping.

I'm looking for lens holders that can be mounted on a camera module with 18mm distance between screw holes. The holder should be as compact as possible and of sizes M12, M8 and M7. Ideally I would like to have a set of each. The ideal depth of the holders would be 9mm, meaning the total distance from the PCB/FPC to the edge of the hole. Please provide a technical drawing for the suggested holders.

#### M12 holder

M12-1.56MM-5MP 4.3mm M12-2.1MM-5MP-B 6.9mm CCL127028PMP 3.0mm, 4.5mm, TTL 12 HK-8244-1042-1 5.2mm, 6.0mm HK-8189-823-1 5.08mm JSD2157 4.54mm, TTL 22

#### 7mm - 16mm holder depth

Tesoo optical Co lens holder M12, [D20H90N2](#), depth: 9mm Focusafe BLH004 lens holder M12, 13mm square, 4mm base height, 18mm screw distance, depth: 13mm Focusafe BLH027, lens holder M12P0.5, 15mm square, 6.5mm base height, 18mm screw distance, depth: 12mm TOWIN lens holder M12P0.5, 18mm screw hole spacing, depth: 9mm ChuangAn CA5117A lens holder M12, 15.3mm square, base height 3mm, 18mm screw hole spacing, depth 8.8mm ChuangAn CA5119A lens holder M12, 13.61mm square, 18mm screw hole spacing, depth 9mm Guangtongd 135-4B-WZ-LCP lens holder M12, 13mm square, 18mm screw hole spacing, depth 8.5mm

#### M8 holder

CA1304A 5.26mm, TTL 13.97mm CA1308C 4.10mm FS2328B13M8 4.5mm, 5.09mm, max 12mm CA5301A M8\*P0.35, max 7.50, base height 3mm, 10mm square

#### [CA1308C holder](#)

Requested ChuangAn lens holder 10mm depth 10mm x 10mm

Focusafe BLH13072, lens holder M8P0.5, 12mm square, 3.3mm base height, 18mm screw distance, depth: 7.2mm ChuangAn CA5301A, lens holder M8P0.35, 10mm square, 3mm base height, no screws, depth: 7.5 mm ChuangAn CA5303A, lens holder M8\*P0.5, 11.45mm square, 3mm base height, no screws, depth: 7 mm

#### M7 holder

JSD1529-A1 2.81mm, 2.61, TTL 11.51mm, max 8.7 mm CA1300I 3.64mm, max 10mm TS-2314T-A10 5mm ?

ChuangAn lens holder 7mm depth 10mm x 10mm

JSD HA1313\_A115P18-052 18mm screw holes. 13mm squared, internally 11.50 squared, M7\*P0.35

#### AICO lens holder

Black 6mm height plastic M8 m8x0.5 thread 0.5mm mount board car rear view lens socket holder

[https://www.alibaba.com/product-detail/Black-6mm-height-plastic-M8-m8x0\\_60736454859.html?spm=a2700.galleryofferlist.normal\\_offer.d\\_image.383e697d6i8agl](https://www.alibaba.com/product-detail/Black-6mm-height-plastic-M8-m8x0_60736454859.html?spm=a2700.galleryofferlist.normal_offer.d_image.383e697d6i8agl)

#### TOWIN Pinhole lens

CCL127028PMP Pinhole lens 2.8mm 1/2.7" IR 3MP HD CCTV M12 mount lens for Covert hidden Surveillance

IMAGE FORMAT 1/2.7" FOCAL LENGTH 2.8mm F.O.V. 140°(D) F.O.V. 108°(H) RESOLUTION 3 Megapixel APERTURE F2.4 MOUNT M12X0.5 IRIS Fixed FOCUS Manual ZOOM Fixed TTL 12 M.O.D. 0.2mTowi

TODO follow up on order via e-mail

#### Henan Kingopt Import & Export

M12 18mm hole spacing Holder for 1/2.5" 1/3" 1/4" [https://www.alibaba.com/product-detail/PC-glass-fiber-18mm-hole-spacing\\_1600192965995.html?spm=a2700.galleryofferlist.normal\\_offer.d\\_title.3a1d2deb77Rsll](https://www.alibaba.com/product-detail/PC-glass-fiber-18mm-hole-spacing_1600192965995.html?spm=a2700.galleryofferlist.normal_offer.d_title.3a1d2deb77Rsll)

#### Lenspro Vicky Hou

<https://www.lensprocctv.com/3-68mm-M7-CCTV-Lens-Low-Distortion-OV2710-p.html> MTV-0368BF127M7(2MP) 3.68mm M7 Mount 1/2.7 FoV 97°/86.5°/50.5° 1/2.7" F2.8 Distortion 9% Φ10x8.6mm

[MTV-0228BF14M7\(2MP\)](#) 2.28mm wide angle M7 Mount Mini Lens for OV2643 FoV 130°110°95° 1/4" F2.4 Distortion 50% Φ10x8.4mm Have: 10 samples. Base tiny, fits only 1/4" sensor

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#6104 15th Floor Section A, Complex Building, Fuzhou Free Trade Zone, Fujian province (Free Trade Pilot Zone)

### Fuzhou ChuangAn Sandra Zhang

1/4" 2mm Board Lens with DFOV 170 degree Miniature M8 Lens

CA1308C

### Fuzhou .. Focusafe Optics Kelly Lin

- [Focusafe Shop - pinhole lenses](#)
- [Focusafe Shop - lens holder](#)

Model No. Description Format Cover (inch) Mount Focus Length(mm) Aperture Field of View Unit Price(USD) EXW FUZHOU Below 100PCS 100~1000PCS

FS2328B13M8 Megapixel IR Board Lens 1/3" M80.5 2.3 2.8 129° 5.8 5.3 FS3225B2MPM10 Megapixel IR Board Lens 1/3" M100.5 3.2 2.5 99° 5.8 5.3

Dear Thepia, Good day! Thanks for your enquiry! I want to introduce two lenses which is suitable for your camera, pls check belowing lens list with attached data sheet: Model No. Description Format Cover (inch) Mount Focus Length(mm) Aperture Field of View Unit Price(USD) EXW FUZHOU Below 100PCS 100~1000PCS  
FS2328B13M8 Megapixel IR Board Lens 1/3" M80.5 2.3 2.8 129° US\$5.8 US\$5.3 FS3225B2MPM10 Megapixel IR Board Lens 1/3" M100.5 3.2 2.5 99° US\$5.8 US\$5.3  
Awaiting for your comments and advice! Wish you good business! Thanks & Best regards, Kelly Lin Sales Manager Fuzhou Focusafe Optoelectronic Technology Co.,Ltd. Add:2F Building A,YiQiang Industrial Park,No.13 Jinzhou North Road,Fuzhou,350002 China. Tel: +86 591 83337525 Fax:+86 591 88263182 Cell:+86 (0) 13665052376 Email:sales@focusafe.com Trademanager: focusafe Skype:focusafe http://www.focusafe.com http://focusafe.en.alibaba.com

Communicating via thepia@pm.me

### Fuzhou ChuangAn Jen Lin

#### Top option

Place of Origin:Fujian, China Brand Name:ChuangAn Model Number:CA1300I Focal Length:2.92mm Sensor Area:1/2.5" Mount Type:M7P0.35 Iris Operation:Fixed Iris Relative Aperture:2.4 Angle of view (VH\*D):71° \*115° 145° Back Focal Length:5.26mm TTL:13.97mm Dimension:10L10.33mm Structure:5G+IR

Lens M8 104° wide angle 3.53mm 1/2.7" 3mp F2.4 H FOV 104 degree M8 wide angle lens

### Lens DFoV Sandra Zhang - M8 170 deg

CA1308C \$2.85 (bought samples)

Focal Length:2mm Sensor Area:1/4" Mount Type:M8P0.5 Iris Operation:Fixed Iris Relative Aperture:2.4 Angle of view (VH\*D):87° \*115° 170° Back Focal Length:4.01mm TTL:13.06mm Dimension:12L10.57mm Place of Origin:CN;FUJ Brand Name:ChuangAn

### Shenzhen Guangtongdian

HK-8244-1042-1 [Element 6G+IR aluminum,glass,plastic look around general lens for aerial photo](#)

1/2.7" sensor F/ 1.8 f 3.0 mm

FOCAL LENGTH (EFL) f 3.0 mm F/NO (INFINITE) F/NO 1.8 BACK FOCAL LENGTH BFL 6.04 mm FLANGE BACK LENGTH FB 5.20 mm FIELD OF VIEW (DIAGONAL) D:160°H 120°V 60° OPTICAL DISTORTION (DIAGONAL) <-78% Thread Size M12\*P0.5 Element 6G+IR Material Aluminum,glass,plastic Feature F/NO:1.8;f:3.0mm

Hyperfocal distance 0.17 m Hyperfocal near limit 0.09 m DoF near limit 0.14 m DoF far limit ∞ Depth of field ∞ Depth of field in front 0.86 m Depth of field behind ∞

Shenzhen Jubaolai Electronics Co., Ltd

Camera Auto Focus F1.8 Lens for 12MP 13MP 1/3.1 inch CMOS sensor

Sensor Size:1/3.1" cmos sensor EFL:3.86 FNO:1.8 TV Distortion:<1.5%

Shipping by: HK Post Get datasheet:Plz contact us Get lowest price:Plz contact us

Place of Origin:TW Brand Name:Taiwan

Skype:michella\_fang

[https://keepintegrity.en.alibaba.com/productgroupdetail-804449054-3/CMOS\\_CCD\\_Sensor.html?spm=a2700.shop\\_plgr.41413.43.5c7f388dihVsU0&filterSimilar=true&filter=null](https://keepintegrity.en.alibaba.com/productgroupdetail-804449054-3/CMOS_CCD_Sensor.html?spm=a2700.shop_plgr.41413.43.5c7f388dihVsU0&filterSimilar=true&filter=null)

Alternate bird eyes from ChuangAn

Use dual 235° lenses M12

[https://www.alibaba.com/product-detail/1-2-3-12MP-235-Degree\\_1600118157156.html?spm=a2700.details.0.0.1426217633iDIJ](https://www.alibaba.com/product-detail/1-2-3-12MP-235-Degree_1600118157156.html?spm=a2700.details.0.0.1426217633iDIJ)

CA347A Focal Length: 1.41mm Sensor Area: 1/2.3" Angle of View (VHD): 235° \* 235° \* 235° Mount Type: M12\*P0.5 Relative Aperture: 2.0 Back Focal Length: 2.30mm TTL: 17.71mm Dimension: 18.5 \*15.98mm Lens Structure: 8G+IR Image circle: 4.46mm

Ideation: <https://www.yankodesign.com/2021/10/06/canons-insane-new-camera-lens-features-two-side-by-side-fisheye-lenses-for-recording-8k-ar-and-vr-footage/>

cwlens.com Shenzhen Chuangwei Video Co.Ltd.

Source for TREEYE ?

CW-BL15620-5MP