



Commonlands

Optics for Cameras



2024

M12 Lens Catalog

Find .STP files, drawings, documentation and order samples at
www.commonlands.com/c-mount-lenses

October 2024

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Customizations and About

How to Find an M12 Lens

commonlands.com/m12-lenses

Identify A Solution Using Our M12 Lens Finder And Field Of View Calculator

Calculate Field of View by Format, Sensor, or Pixel Count

Field of view and angular resolution for IMX678 a sensor in 3840px * 2160px output with 7.68mm horizontal, 4.32mm vertical

Product	Focal Length	F#	Resolution	HFOV	VFOV	DFoV	Ang. Res. Center	Ang. Res. Vedge	Ang. Res. Hedge	Max Im. Cir.
CIL216	1.55mm	2.2	12MP	195° (61%)	175°	195° (53%)	14px/°	10px/°	9px/°	4.7mm
CIL237	1.7mm	2.2	8MP	186° (72%)	146°	186° (62%)	15px/°	15px/°	15px/°	5.5mm
CIL239	1.8mm	2	12MP	185° (68%)	147°	185° (59%)	16px/°	13px/°	11px/°	5.2mm
CIL220	1.83mm	2.8	10MP	213° (89%)	135°	213° (77%)	16px/°	16px/°	16px/°	6.8mm
CIL219	1.9mm	2.5	18MP	199° (82%)	133°	199° (72%)	17px/°	16px/°	14px/°	6.3mm
CIL282	2.2mm	1.8	8MP	192° (89%)	116°	192° (77%)	19px/°	18px/°	15px/°	6.8mm
CIL227	2.7mm	2.5	12MP	180°	94°	195° (93%)	24px/°	22px/°	17px/°	8.2mm
CIL027	2.7mm	2.8	12MP	112°	78°	120°	24px/°	37px/°	66px/°	8.9mm
CIL030	3mm	2.1	14MP	110°	74°	119°	26px/°	36px/°	58px/°	9.7mm
CIL231	3.1mm	1.9	16MP	153°	81°	180°	27px/°	25px/°	22px/°	9mm
CIL334	3.5mm	2.2	5MP	135°	72°	159°	31px/°	29px/°	25px/°	9.4mm
CIL339	3.9mm	1.6	10MP	115°	64°	132°	34px/°	34px/°	32px/°	9.7mm
CIL341	4mm	2	10MP	117°	63°	138°	35px/°	33px/°	29px/°	10.5mm
CIL042	4.2mm	1.9	8MP	85°	55°	93°	37px/°	46px/°	65px/°	9.4mm
CIL046	4.4mm	2	9MP	88°	54°	98°	38px/°	43px/°	54px/°	9.4mm

« Prev 1 2 Next »

Calculate Field of View and Angular Resolution

Update the table with field of view values provided by our lenses on any sensor. Distortion included!

Calculate FoV by Sensor Part Number

Calculate FoV by Format

Calculate FoV by Pixel Count

H Pixels

V Pixels

2

Calculate FoV

Use exact sensor output mode details ("by pixel count") for the best results.

Angular resolution only shows if using the Calculate by Sensor PN or Calculate by Pixel Count as the calculation requires pixel pitch.

Use Our FoV Calculator

- Database of >100 image sensors
- Calculation of FoV for all lenses, including distortion for wide-angle and fisheye lenses
- Filters for all-glass, ingress protection, distortion, and more
- Sort based on specification

Easily Order Samples for Engineering Validation



Quality Assured

All lenses are inspected at OQC based on our mechanical drawings and specifications



Next Day Delivery

Receive your samples overnight across the US or within 1 week worldwide



Volume Production Ready

Our lenses are ready to make your project succeed, whether 10pcs or 100,000pcs+/yr

No Distortion 3.2mm Lens

The CIL046 is a wide-angle no-distortion 3.2mm lens suitable for 1/2.3" and 1/2.8" sensors. The CIL046 has an IP67 rated sensor and the lens provides 88° HFOV on 1/2.3" sensor with 8MP resolution.

\$39.00

Selected Part Number is: CIL046 F2.2 3.2mm

Buttons: Add to Cart, Request Volume Pricing

There are 3 units CIL046 F2.2 3.2mm (8MP) in stock in the US.

There are 20 units CIL046 F2.2 3.2mm (16MP) in stock in the US.

There are 10 units CIL046 F2.2 3.2mm (12MP) in stock in the US.

There are 10 units CIL046 F2.2 3.2mm (10MP) in stock in the US.

There are 24 units CIL046 F2.2 3.2mm (8MP) in stock in the US.

There are 10 units CIL046 F2.2 3.2mm (6MP) in stock in the US.

There are 10 units CIL046 F2.2 3.2mm (4MP) in stock in the US.

There are 24 units CIL046 F2.2 3.2mm (2MP) in stock in the US.

Lens Features



"IP" version indicates the lens elements for outdoor lighting applications.



<0.1% distortion and wide angle lens for a normal image.

Optical and Mechanical Specification Table

Lens Parameter	Performance Detail
Part Number	CIL046
Formal Type	1/2.3"
WFL	3.2mm
F#	2.2, 2.8, 4.0, 5.6
Resolution	F2.2 12MP F2.8 8MP F4.0 6MP F5.6 4MP
Field of View	88° HFOV (8MP) Calculate for your sensor using our FOV Lens Calculator
Image Circle	8.8mm
Distortion	<0.1% Resolution
Weight	5.7g

Mechanical Variants

Variant	Description
"H123"	IP67, 88mm x 10mm x 10mm, 1/2.3" sensor, 12MP, 8.8mm, Cap
"H123"	No Ingress Protection, 88mm x 10mm x 10mm, 1/2.3" sensor, 12MP, 8.8mm, Cap



M12 Lens / S-Mount Lens List

Product	Lens Type	EFL	F#	Resolution	Im.Cir.	TTL	Distortion	IP-rating	Construction	Webpage	Page #
CIL207	Fisheye	0.8mm	1.9	3MP	4.0mm	14.6mm	+27% F-Θ	IP67	Glass+Plastic	....com/cil207	7
CIL208	Fisheye	0.9mm	2.2	5MP	2.9mm	12.9mm	-6% F-Θ	/	Glass	....com/cil208	7
CIL293	Fisheye	1.3mm	2.2	12MP	5.4mm	29.9mm	+25% F-Θ	IP67	Glass+MGlass	...com/cil293	9
CIL914	Fisheye	1.4mm	2.4	5MP	4.5mm	13.2mm	-8% F-Θ	IP67	Glass	....com/cil914	7
CIL216	Fisheye	1.55mm	2.2	12MP	4.7mm	27.3mm	-11% F-Θ	/	Glass	....com/cil216	9
CIL237	Fisheye	1.7mm	2.2	5MP	5.5mm	19.0mm	-10% F-Θ	/	Glass+Plastic	....com/cil237	8
CIL818	Fisheye	1.8mm	2.0	3MP	5.1mm	12.0mm	-12% F-Θ	IP67	Glass+Plastic	....com/cil818	7
CIL239	Fisheye	1.8mm	2.0	8MP	5.2mm	27.1mm	-13% F-Θ	/	Glass	....com/cil239	9
CIL018	Low Distortion	1.8mm	2.8	8MP	7.0mm	24.5mm	-7% TV	IP67	Glass+Plastic	....com/cil018	16
CIL220	Fisheye	1.8mm	2.3	5MP	6.4mm	15.9mm	0% F-Θ	IP69K	Glass	....com/cil220	8
CIL281	Fisheye	2.0mm	1.8	12MP	6.4mm	27.7mm	-1% F-Θ	IP67	Glass	....com/cil281	9
CIL290	Fisheye	1.9mm	2.2	5MP	5.8mm	12.3mm	-9% F-Θ	IP67	Glass+Plastic	....com/cil290	8
CIL819	Wide-Angle	1.9mm	2.0	8MP	5.8mm	16.0mm	-22% TV	/	Glass+Plastic	....com/cil819	11
CIL821	Wide-Angle	2.1mm	2.4	8MP	6.5mm	15.0mm	+23% F-Θ	IP67	Glass+Plastic	....com/cil821	11
CIL222	Fisheye	2.2mm	2.0	5MP	6.2mm	16.6mm	-9% F-Θ	IP69K	Glass	....com/cil222	8
CIL023	Low Distortion	2.2mm	2.2	8MP	7.8mm	24.1mm	-6% TV	IP67	Glass+Plastic	....com/cil023	16
CIL282	Fisheye	2.2mm	1.8	5MP	6.3mm	22.1mm	-8% F-Θ	IP67	Glass	....com/cil282	10
CIL324	Fisheye	2.4mm	1.9	3MP	7.1mm	22.1mm	-12% F-Θ	IP69K	Glass	....com/cil324	10
CIL825	Wide-Angle	2.5mm	2.4	5MP	6.8mm	15.3mm	-15% TV	/	Glass+Plastic	....com/cil825	11
CIL926	Wide-Angle	2.5mm	2.4	8MP	7.4mm	22.0mm	-1% F-Θ	IP67	Glass	....com/cil926	12
CIL028	Low Distortion	2.6mm	2.3 / 2.6	5MP / 8MP	7.2mm	22.0mm	-2% TV	/	Glass+Plastic	....com/cil028	/
CIL227	Fisheye	2.7mm	2.5	12MP	8.2mm	22.0mm	-11% F-Θ	IP69K	Glass	....com/cil227	10
CIL327	Wide-Angle	2.7mm	1.5 / 1.8	3MP / 8MP	7.1mm	22.5mm	-13% F-Θ	IP69K	Glass	....com/cil327	12
CIL027	Low Distortion	2.7mm	2.8	8MP	7.8mm	22.6mm	-2% TV	/	Glass+Plastic	....com/cil027	/
CIL093	Low Distortion	2.7mm	2.4	5MP	7.6mm	27.5mm	-3% TV	/	Glass + MGlass	....com/cil093	16
CIL329	Wide-Angle	2.8mm	2.0	3MP	6.8mm	17.7mm	-7% F-Θ	IP69K	Glass	....com/cil329	14
CIL330	Wide-Angle	2.9mm	2.6	12MP	8.0mm	22.5mm	-3% F-Θ	IP67	Glass	....com/cil330	12
CIL030	Low Distortion	3.0mm	2.1	8MP	9.3mm	29.6mm	-7% TV	/	Glass+Plastic	....com/cil030	16
CIL231	Fisheye	3.1mm	1.9	14MP	9.1mm	27.8mm	-10% F-Θ	IP67	Glass	....com/cil231	10
CIL034	Low Distortion	3.2mm	2.3 / 2.7 / 4.2	6MP / 12MP	7.8mm	22.6mm	0% TV	IP67	Glass+Plastic	....com/cil034	17
CIL332	Wide-Angle	3.2mm	1.8	4MP	7.2mm	22.2mm	-15% F-Θ	IP67	Glass	....com/cil332	14

Subject to change without notice.

M12 Lens / S-Mount Lens List

Product	Lens Type	EFL	F#	Resolution	Im.Cir.	TTL	Distortion	IP-rating	Construction	Webpage	Page #
CIL036	Low Distortion	3.3mm	2.2	3MP	7.0mm	16.6mm	-0.7% TV	/	Glass+Plastic	....com/cil036	11
CIL335	Wide-Angle	3.5mm	1.8	10MP	7.8mm	23.9mm	-3% F-Θ	/	Glass	....com/cil335	12
CIL333	Wide-Angle	3.5mm	2.4	8MP	8.8mm	22.7mm	-5% F-Θ	IP67	Glass	....com/cil333	13
CIL394	Wide-Angle	3.5mm	2.1	3MP	7.6mm	17.0mm	-6% F-Θ	IP69K	Glass	....com/cil394	14
CIL038	Low Distortion	3.8mm	3.0	5MP	7.8mm	25.4mm	0% TV	/	Glass	....com/cil038	17
CIL339	Wide-Angle	3.9mm	1.6	10MP	9.4mm	30.0mm	-3% F-Θ	IP69K	Glass+MGlass	....com/cil339	15
CIL042	Low Distortion	4.2mm	1.9	8MP	8.8mm	30.0mm	0% TV	/	Glass+Plastic	....com/cil042	17
CIL043	Low Distortion	4.4mm	3.2	10MP	7.8mm	22.0mm	-0.6% TV	IP67	Glass+Plastic	....com/cil043	17
CIL343	Wide-Angle	4.4mm	2.3	10MP	8.8mm	22.5mm	-5% F-Θ	IP67	Glass	....com/cil343	13
CIL344	Wide-Angle	4.5mm	1.9 / 2.7	3MP 14MP	11mm	29.8mm	-3% F-Θ	IP69K	Glass	....com/cil344	13
CIL046	Mid-Range	4.4mm	2.0	8MP	8.9mm	30.4mm	-8% TV	/	Glass	....com/cil046	13
CIL948	Wide-Angle	4.8mm	2.0	3MP	7.8mm	18.7mm	-10% TV	IP69K	Glass	....com/cil948	14
CIL358	Wide-Angle	5.8mm	1.9	10MP	9.3mm	29.7mm	-9% F-Θ	IP67	Glass	....com/cil358	15
CIL059	Low Distortion	5.9mm	1.7 / 4.0 / 5.6	8MP	9.3mm	31.3mm	-2% TV	IP67	Glass+Plastic	....com/cil042	19
CIL061	Mid-Range	6.0mm	1.8	3MP	7.2mm	20.6mm	-5% TV	IP69K	Glass	....com/cil061	20
CIL068	Mid-Range	6.8mm	2.5	12MP	8.2mm	31.6mm	-1% TV	/	Glass	....com/cil068	19
CIL368	Wide-Angle	6.8mm	1.8	12MP	9.3mm	33.0mm	-4% F-Θ	IP69K	Glass+MGlass	....com/cil368	15
CIL078	Mid-Range	7.8mm	2.0	12MP	9.3mm	34.4mm	-1% TV	/	Glass	....com/cil078	19
CIL079	Mid-Range	7.9mm	2.0	3MP	7.8mm	24.1mm	-5% TV	IP67	Glass	....com/cil079	20
CIL083	Mid-Range	8.0mm	2.8	6MP	9.0mm	24.4mm	-0.5% TV	/	Glass+Plastic	....com/cil083	/
CIL085	Mid-Range	8.2mm	2.3 / 4.4	8MP+	8.9mm	29.9mm	<-1% TV	/	Glass	....com/cil085	19
CIL120	Telephoto	12.2mm	2.2	8MP	8.1mm	26.3mm	-3% TV	IP67	Glass	....com/cil120	20
CIL122	Telephoto	12.0mm	2.0	10MP	9.3mm	24.2mm	-2% TV	/	Glass	....com/cil122	21
CIL125	Telephoto	12.5mm	2.4 / 3.6 / 8.0	12MP	8.0mm	22.9mm	-1% TV	/	Glass+Plastic	....com/cil125	/
CIL142	Telephoto	14.4mm	2.6 / 4.1 / 5.2	12MP	9.3mm	20.2mm	-1% TV	/	Glass	....com/cil142	21
CIL160	Telephoto	16.0mm	1.9 / 2.8 / 5.6	12MP	8.0mm	22.4mm	-0.5% TV	/	Glass	....com/cil160	21
CIL178	Telephoto	17.8mm	2.0	2MP	7.2mm	19.8mm	+0.3% TV	/	Glass+Plastic	....com/cil178	21
CIL121	Telephoto	21.8mm	2.8 / 5.9	12MP	9.3mm	28.2mm	-1% TV	/	Glass	....com/cil121	22
CIL250	Telephoto	25.0mm	2.0	5MP	9.6mm	33.7mm	<-1% TV	/	Glass	....com/cil250	/
CIL350	Telephoto	35.0mm	2.4	12MP	11.0mm	38.9mm	0% TV	/	Glass	....com/cil350	22
CIL051	Telephoto	50.0mm	2.8	12MP	9.4mm	51.2mm	0% TV	IP67	Glass	....com/cil051	22

Subject to change without notice.

Fisheye and Wide-Angle Lenses

Fisheye lenses have a maximum field of view greater than 180° .

Wide-angle lenses have a maximum field of view between 80° and 180° .

Primary tradeoffs include fill factor, field of view, distortion, F#, and resolution.

Fisheye Lenses



Low Distortion Wide-Angle Lenses

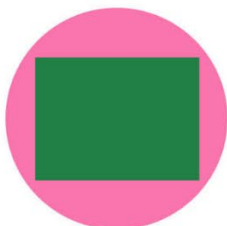


Fast & Stereographic Wide-Angle Lenses

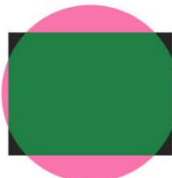


Suggestions for selecting wide-angle lenses:

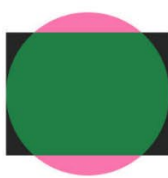
- Identify the acceptable fill factor.
 - $\text{HFoV} > 170^\circ$ or $\text{VFoV} > 130^\circ$ will result in partial coverage and/or black corners.
 - A fisheye lens can be a wide-angle lens but not every wide-angle lens is a fisheye.
- Calculate field of view with distortion using our calculator commonlands.com/m12-lenses.
- Establish distortion and F# requirements.
 - Lower distortion requires a higher F# if all other specifications remains equal.
 - $\text{HFoV} > 125^\circ$ and $\text{VFoV} > 105^\circ$ will result in distortion, regardless of optical design.
 - Our calculator (commonlands.com/dof-calculator) provides relative transmission for different F#s.
- Determine environmental constraints.
 - Operating temperature $> -60^\circ\text{C}$ usually requires all-glass, which may preclude low distortion lenses for $> 3\text{MP}$ applications.
 - Outdoor applications without a dome or window are best with an ingress protected lens.



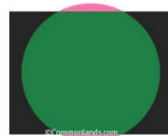
Full Coverage Fisheye
"Wide Angle" Lens



Partial Coverage Fisheye



Horizontal Fisheye



Partial Coverage Fisheye



Circular Fisheye



Underfilled Fisheye

Fisheye Lenses: <15mm Total Track Length

CIL208: 200°@2.9mm Fisheye M12 Lens

Commonlands.com/cil208

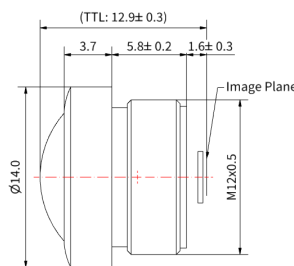


Image Circle (Format)	2.9mm
EFL	0.9mm
Field of View	200°@2.9mm
F#	2.2
Resolution	5MP (1.62um)
Distortion	-6% F-Θ
Construction	6G, AL6061

CIL207: 220°@4.0mm Stereographic Fisheye M12 Lens

Commonlands.com/cil207

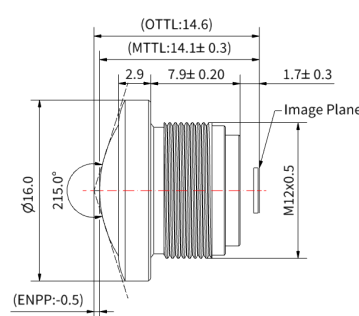


Image Circle (Format)	4.0mm
EFL	0.8mm
Field of View	220°@4.0mm
F#	1.9
Resolution	5MP (2.2um)
Distortion	+27% F-Θ
Construction	2G4P, AL6061

CIL914: 200°@4.5mm Fisheye M12 Lens

Commonlands.com/cil914

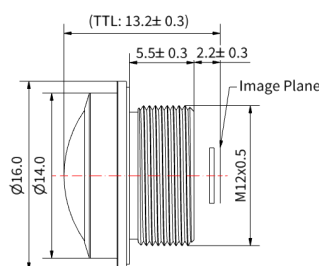


Image Circle (Format)	4.5mm
EFL	1.4mm
Field of View	200°@4.5mm
F#	2.4
Resolution	5MP (2.4um)
Distortion	-8% F-Θ
Construction	6G, AL6061

CIL818: 195°@5.1mm Fisheye M12 Lens (M8 Available)

Commonlands.com/cil818

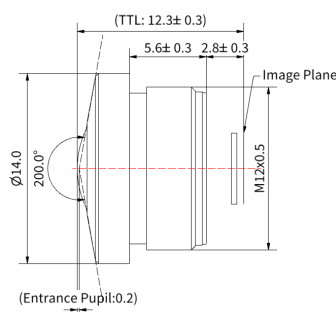


Image Circle (Format)	5.1mm
EFL	1.8mm
Field of View	190°@5.1mm
F#	2.05
Resolution	3MP (3.0um)
Distortion	-12% F-Θ
Construction	2G4P AL6061/PC

Subject to change without notice. Drawings not to scale.

Fisheye Lenses

CIL237: 194°@5.4mm Fisheye M12 Lens

Commonlands.com/cil237

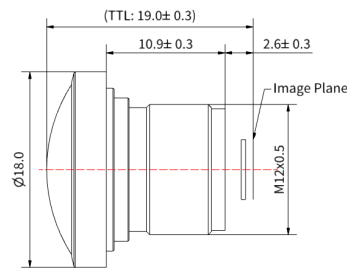


Image Circle (Format)	5.5mm
EFL	1.7mm
Field of View	192°@5.4mm
F#	2.2
Resolution	5MP (2.2)
Distortion	-2% F-Θ @ 5mm
Construction	4G2P, AL6061

CIL290: 190°@5.7mm Fisheye M12 Lens

Commonlands.com/cil290

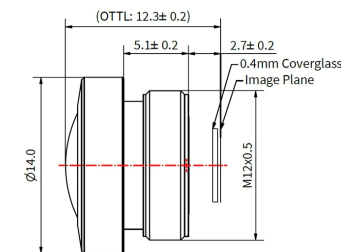


Image Circle (Format)	5.8mm
EFL	1.9mm
Field of View	190°@5.7mm
F#	2.2
Resolution	5MP (2.2um)
Distortion	-9% F-Θ
Construction	2G4P AL6061+PC

CIL220: 215°@6.8mm F-Θ Fisheye M12 Lens

Commonlands.com/cil220

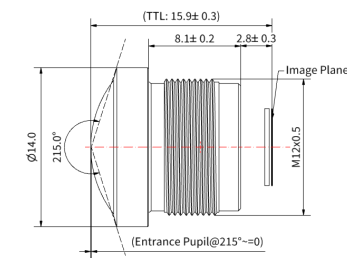
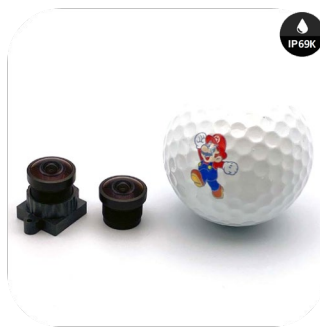


Image Circle (Format)	6.8mm
EFL	1.8mm
Field of View	215°@6.8mm
F#	2.3 / 2.8
Resolution	8MP (1.85um)
Distortion	0% F-Θ
Construction	6G, AL6061

CIL222: 190°@6.6mm Fisheye M12 Lens

Commonlands.com/cil222

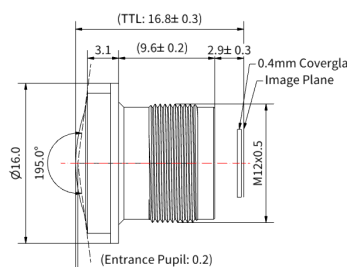
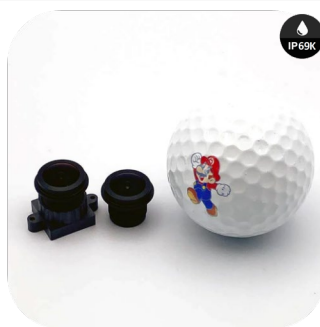


Image Circle (Format)	6.6mm
EFL	2.2mm
Field of View	190°@6.6mm
F#	2.0
Resolution	6MP (1.85um)
Distortion	-9% F-Θ
Construction	6G, AL6061

Subject to change without notice. Drawings not to scale.

Fisheye Lenses

CIL293: 190°@5.4mm Stereographic Fisheye M12 Lens

Commonlands.com/cil293

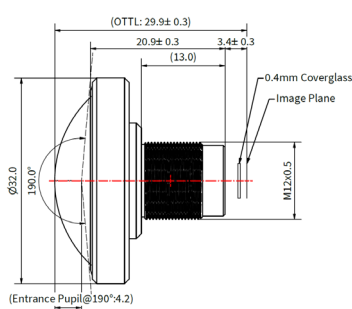


Image Circle (Format)	5.4mm
EFL	1.3mm
Field of View	190°@5.4mm
F#	2.2
Resolution	16MP (1.55um)
Distortion	+25% F-Θ
Construction	8G 2MG, AL6061

CIL216: 195°@4.7mm Fisheye M12 Lens

Commonlands.com/cil216

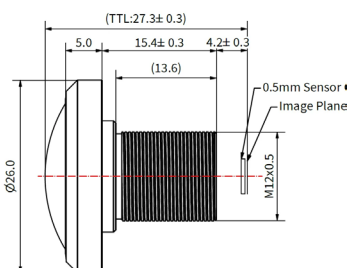


Image Circle (Format)	4.7mm
EFL	1.5mm
Field of View	195°@4.7mm
F#	2.2
Resolution	14MP (1.4um)
Distortion	-11% F-Θ
Construction	Glass, AL6061

CIL239: 186°@5.2mm IR Corrected Fisheye M12 Lens

Commonlands.com/cil239

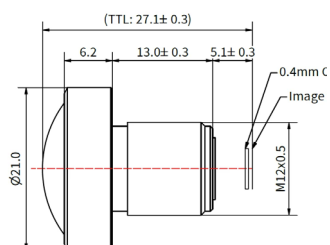


Image Circle (Format)	5.2mm
EFL	1.8mm
Field of View	186°@5.2mm
F#	2.0
Resolution	8MP (1.85um)
Distortion	-13% F-Θ
Construction	Glass, AL6061

CIL281: 190°@6.4mm Fisheye M12 Lens

Commonlands.com/cil281

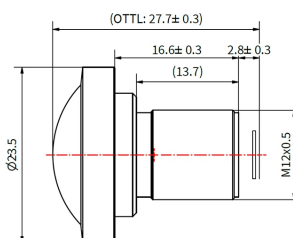


Image Circle (Format)	6.4mm
EFL	2.0mm
Field of View	200°@6.4mm
F#	1.8
Resolution	12MP (1.55um)
Distortion	-1% F-Θ
Construction	Glass, AL6061

Subject to change without notice. Drawings not to scale.

Fisheye Lenses

CIL282: 190°@6.8mm Fisheye M12 Lens

Commonlands.com/cil282

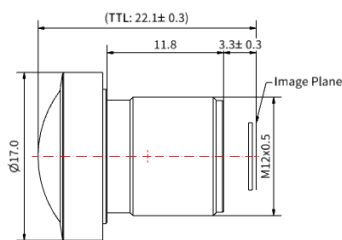


Image Circle (Format)	6.8mm
EFL	2.2mm
Field of View	190°@6.8mm
F#	1.8
Resolution	5MP (2.2um)
Distortion	-8% F-Ø
Construction	7G, AL6061

CIL324: 200°@7.2mm Fisheye M12 Lens

Commonlands.com/cil324

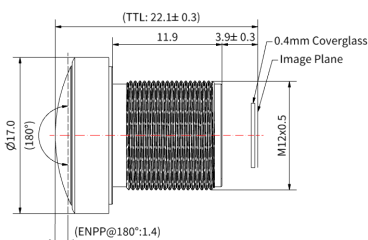
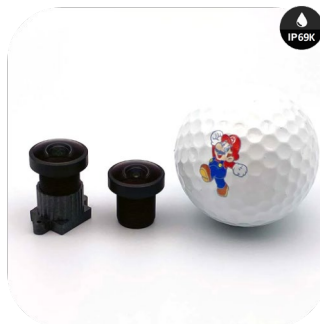


Image Circle (Format)	7.2mm
EFL	2.4mm
Field of View	180°@6.6mm
F#	1.9
Resolution	3MP (3.0um)
Distortion	-12% F-Ø
Construction	6G, AL6061

CIL227: 186°@5.2mm IR Corrected Fisheye M12 Lens

Commonlands.com/cil227

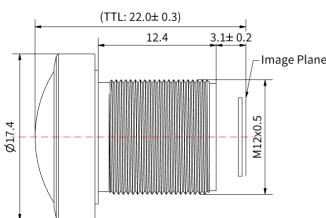
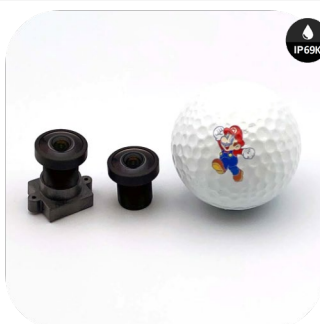


Image Circle (Format)	8.0mm
EFL	2.7mm
Field of View	190°@8.0mm
F#	2.5
Resolution	12MP (1.55um)
Distortion	-11% F-Ø
Construction	7G, AL6061

CIL231: 190°@9.1mm Fisheye M12 Lens

Commonlands.com/cil231

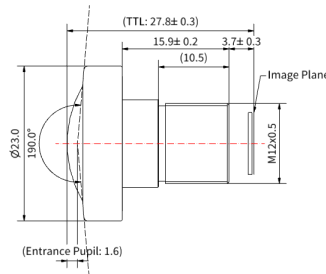


Image Circle (Format)	9.1mm
EFL	3.1mm
Field of View	190°@9.1mm
F#	1.9
Resolution	14MP (1.55um)
Distortion	-10% F-Ø
Construction	9G, AL6061

Subject to change without notice. Drawings not to scale.

Wide-Angle Lenses: <17mm TTL

CIL819: 1.9mm Stereographic M12 Lens (M8 Available)

Commonlands.com/cil819

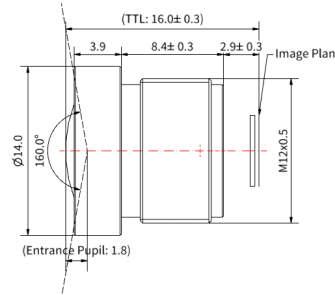


Image Circle (Format)	5.8mm 1/3"
EFL	1.9mm
Field of View	160°@5.6mm
F#	2.0
Resolution	4MP (2.2um)
Distortion	-72% / +13% F-Θ
Construction	5G2P, AL6061

CIL821: 2.1mm Stereographic M12 Lens

Commonlands.com/cil821

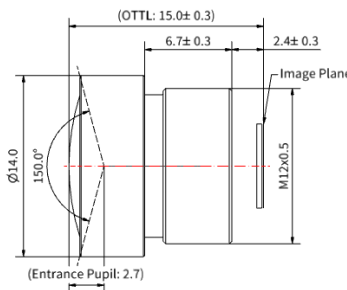


Image Circle (Format)	6.8mm 1/2.7"
EFL	2.1mm
Field of View	150°@6.8mm
F#	2.4
Resolution	6MP (1.85um)
Distortion	-55% / +23% F-Θ
Construction	4G2P, AL6061

CIL825: 2.5mm Stereographic M12 Lens

Commonlands.com/cil825

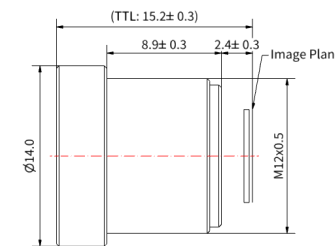


Image Circle (Format)	6.8mm 1/2.7"
EFL	2.5mm
Field of View	126°@6.8mm
F#	2.4
Resolution	5MP (2.1um)
Distortion	-30% / +24% F-Θ
Construction	4G2P, AL6061

CIL036: 3.3mm Low Distortion M12 Lens

Commonlands.com/cil036

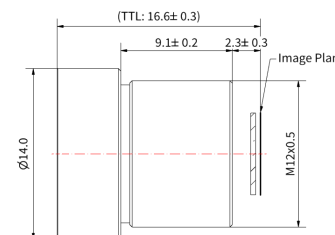


Image Circle (Format)	7.0mm 1/2.5"
EFL	3.3mm
Field of View	89°@6.4mm
F#	2.2
Resolution	3MP (3.0um)
Distortion	-1.1%
Construction	3G2P, AL6061

Subject to change without notice. Drawings not to scale.

Wide-Angle Lenses

CIL926: 2.5mm Wide-Angle F-Θ M12 Lens

Commonlands.com/cil926

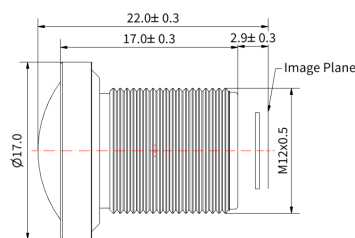
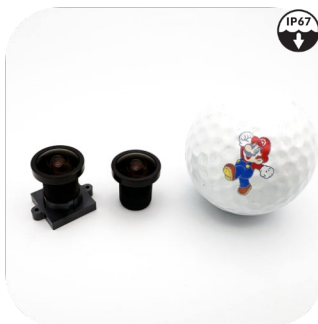


Image Circle (Format)	7.4mm 1/2.5"
EFL	2.5mm
Field of View	172°@7.4mm
F#	2.4
Resolution	8MP (1.62um)
Distortion	-90% / -1% F-Θ
Construction	7G, AL6061

CIL327: 2.7mm Wide-Angle M12 lens

Commonlands.com/cil327

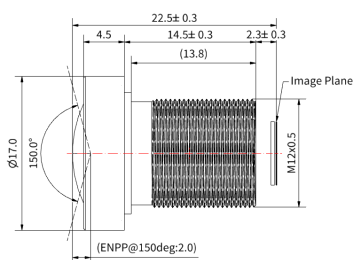


Image Circle (Format)	7.1mm 1/2.6"
EFL	2.7mm
Field of View	150°@6.8mm
F#	1.5 / 1.8
Resolution	8MP (1.62um)
Distortion	-85% / -13% F-Θ
Construction	7G, AL6061

CIL330: 2.9mm Wide-Angle M12 Lens

Commonlands.com/cil330

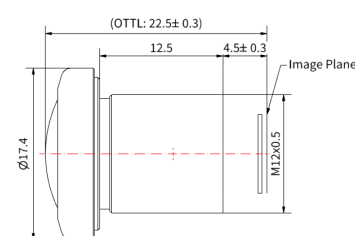


Image Circle (Format)	8.2mm 1/2"
EFL	2.9mm
Field of View	155°@7.8mm
F#	2.6
Resolution	12MP (1.55um)
Distortion	-79% / -3% F-Θ
Construction	8G, AL6061

CIL335: 3.5mm Wide-Angle M12 Lens

Commonlands.com/cil335

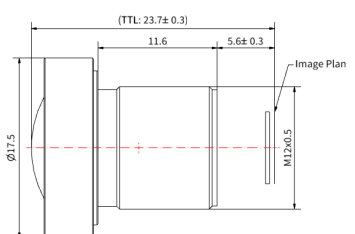


Image Circle (Format)	7.8mm 1/2.4"
EFL	3.5mm
Field of View	132°@7.8mm
F#	1.8
Resolution	8MP (1.62um)
Distortion	-50% / -3% F-Θ
Construction	6G, AL6061

Subject to change without notice. Drawings not to scale.

Wide-Angle Lenses

CIL333: 3.5mm Wide-Angle M12 Lens

Commonlands.com/cil333

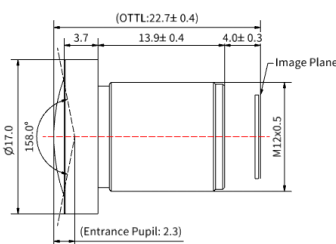


Image Circle (Format)	8.8mm 1/1.8"
EFL	3.5mm
Field of View	136°@8.0mm
F#	2.4
Resolution	8MP (1.55um)
Distortion	-72% / -5% F-Θ
Construction	8G, AL6061

CIL343: 4.4mm Wide-Angle M12 Lens

Commonlands.com/cil343

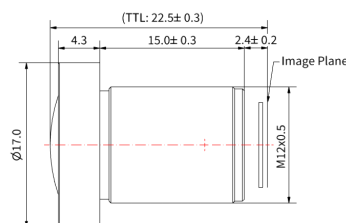


Image Circle (Format)	8.8mm 1/1.8"
EFL	4.4mm
Field of View	123°@8.8mm
F#	2.3
Resolution	10MP (1.85um)
Distortion	-43% / -5% F-Θ
Construction	7G, AL6061

CIL344: 4.5mm Wide-Angle F-Θ M12 Lens

Commonlands.com/cil344

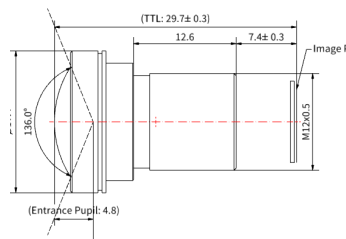
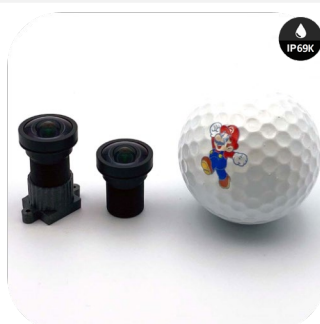


Image Circle (Format)	11mm 1/1.5"
EFL	4.5mm
Field of View	128°@7.6mm
F#	1.9 / 2.7
Resolution	12MP (2.1um)
Distortion	-48% / -2% F-Θ
Construction	7G, AL6061

CIL046: 4.4mm IR Corrected Wide Angle Low Distortion M12 Lens

Commonlands.com/cil046

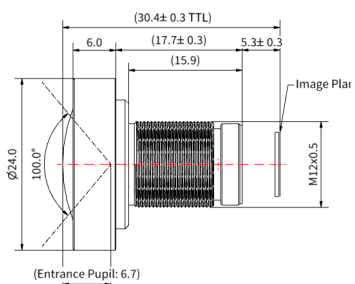


Image Circle (Format)	8.8mm 1/1.8"
EFL	4.4mm
Field of View	100°@8.9mm
F#	2.05
Resolution	8MP (2.1um)
Distortion	-14% / +16% F-Θ
Construction	12G, AL6061

Subject to change without notice. Drawings not to scale.

Wide-Angle Lenses: Automotive Grade

CIL329: 2.8mm Wide-Angle M12 Lens

Commonlands.com/cil329

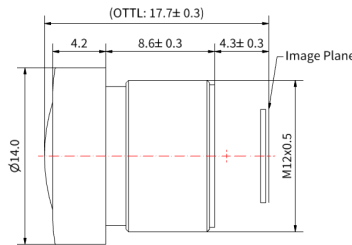


Image Circle (Format)	6.9mm 1/2.7"
EFL	2.8mm
Field of View	150°@6.9mm
F#	2.0
Resolution	3MP (2.1um)
Distortion	-68% / -7% F-Θ
Construction	6G, AL6061

CIL332: 3.2mm Wide-Angle M12 Lens

Commonlands.com/cil332

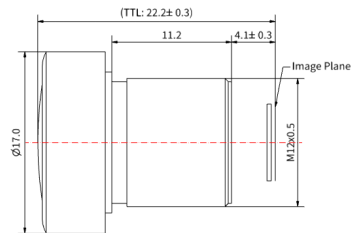


Image Circle (Format)	7.2mm 1/2.4"
EFL	3.2mm
Field of View	129°@6.8mm
F#	1.8
Resolution	4MP (2.1um)
Distortion	-61% / -15% F-Θ
Construction	6G, AL6061

CIL394: 3.5mm Wide-Angle M12 Lens

Commonlands.com/cil336

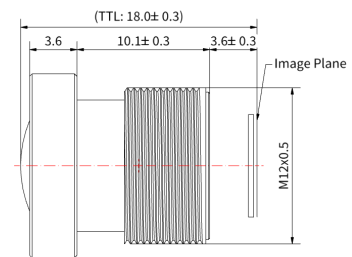
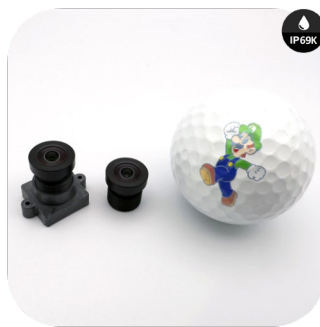


Image Circle (Format)	7.6mm 1/2.4"
EFL	3.5mm
Field of View	100°@5.8mm
F#	2.1
Resolution	3MP (2.1um)
Distortion	-54% / -6% F-Θ
Construction	6G, AL6061

CIL948: 4.8mm Wide-Angle M12 Lens

Commonlands.com/cil948

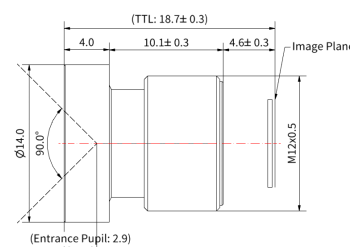


Image Circle (Format)	7.5mm 1/2.4"
EFL	4.8mm
Field of View	88°@7.2mm
F#	2.0
Resolution	3MP (3.0um)
Distortion	-22% / -2% F-Θ
Construction	6G, AL6061

Subject to change without notice. Drawings not to scale.

Wide-Angle Lenses: 8MP Automotive Grade

CIL339: 3.9mm Wide-Angle M12 Lens

Commonlands.com/cil339

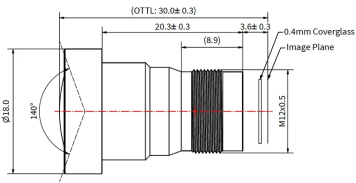
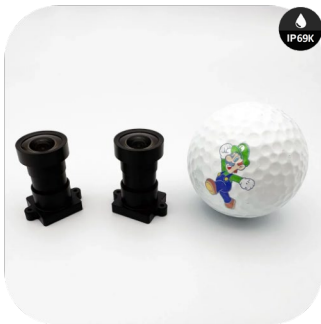


Image Circle (Format)	9.4mm 1/1.7"
EFL	3.9mm
Field of View	120°@8.0mm
F#	1.6
Resolution	8MP (2.1um)
Distortion	-3% F-Θ
Construction	G+MG, AL6061

CIL358: 5.8mm Wide-Angle M12 Lens

Commonlands.com/cil358

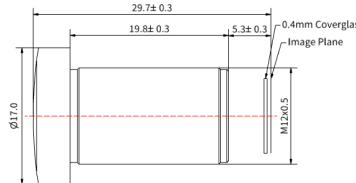


Image Circle (Format)	9.3mm 1/1.7"
EFL	5.8mm
Field of View	102°@9.3mm
F#	1.9
Resolution	10MP (1.85um)
Distortion	-34% / -9% F-Θ
Construction	7G, AL6061

CIL368: 6.8mm Wide-Angle M12 Lens

Commonlands.com/cil368

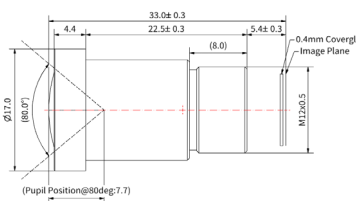


Image Circle (Format)	9.3mm 1/1.7"
EFL	6.8mm
Field of View	69°@8.0mm
F#	1.8
Resolution	12MP (1.85um)
Distortion	-14% / -3% F-Θ
Construction	7G 1MG, AL6061

Wide-Angle Lenses: Low Distortion

CIL018: 1.8mm Low Distortion M12 Lens

Commonlands.com/cil018

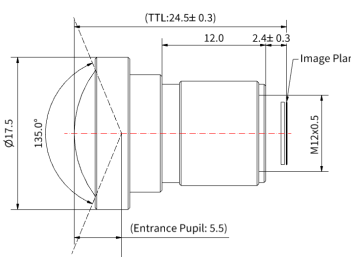


Image Circle (Format)	6.8mm 1/2.7"
EFL	1.8mm
Field of View	134°@7.0mm
F#	2.8
Resolution	8MP (1.62um)
Distortion	-14% / -7% TV
Construction	5G 2P, AL6061

CIL023: 2.2mm Low Distortion M12 Lens

Commonlands.com/cil023

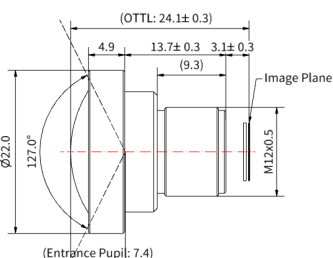


Image Circle (Format)	7.8mm 1/2.3"
EFL	2.2mm
Field of View	121°@7.0mm
F#	2.2
Resolution	8MP (1.85um)
Distortion	-12% / -6% TV
Construction	5G 2P, AL6061

CIL093: 2.7mm Low Distortion M12 Lens

Commonlands.com/cil093

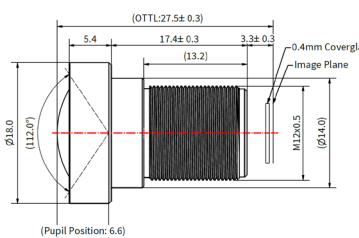


Image Circle (Format)	7.6mm 1/2.4"
EFL	2.9mm
Field of View	105°@7.0mm
F#	2.4
Resolution	5MP (2.2um)
Distortion	-7% / -3% TV
Construction	G+MG, AL6061

CIL030: 3.0mm Low Distortion M12 Lens

Commonlands.com/cil030

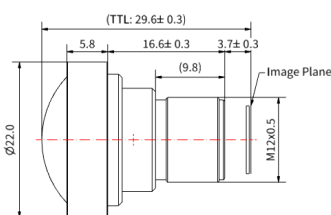


Image Circle (Format)	9.0mm+ 1/1.7"
EFL	3.0mm
Field of View	115°@8.5mm
F#	2.1
Resolution	8MP (2.1um)
Distortion	-15% / -8% TV
Construction	4G 4P, AL6061

Subject to change without notice. Drawings not to scale.

Wide-Angle Lenses: Low Distortion

CIL034: 3.2mm No Distortion M12 Lens

Commonlands.com/cil034

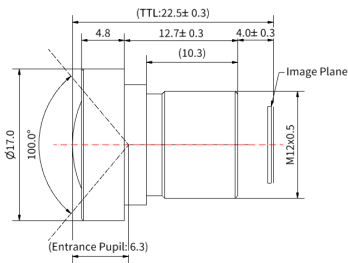


Image Circle (Format)	7.8mm 1/1.9"
EFL	3.2mm
Field of View	100°@8.0mm
F#	2.3 / 2.7 / 4.2
Resolution	10MP (1.62um)
Optical Distortion	0%
Construction	4G 2P, AL6061

CIL038: 3.8mm No Distortion M12 Lens

Commonlands.com/cil038

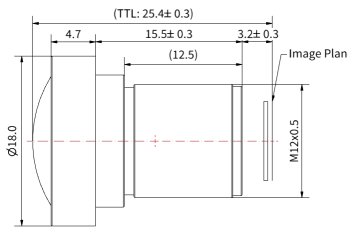


Image Circle (Format)	3.8mm 1/2.3"
EFL	3.8mm
Field of View	92°@8.0mm
F#	2.8
Resolution	5MP (3um)
Optical Distortion	-1%
Construction	8G, AL6061

CIL042: 4.2mm Low Distortion M12 Lens

Commonlands.com/cil042

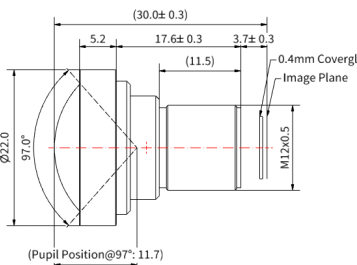


Image Circle (Format)	9.3mm 1/1.7"
EFL	4.2mm
Field of View	88°@8.0mm
F#	1.9
Resolution	8MP (2.1um)
Optical Distortion	-1%
Construction	4G 4P, AL6061

CIL043: 4.4mm Low Distortion M12 Lens

Commonlands.com/cil043

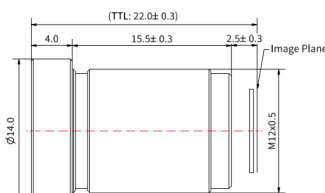


Image Circle (Format)	8.1mm 1/2"
EFL	4.4mm
Field of View	85°@7.9mm
F#	2.05
Resolution	10MP (1.55um)
Optical Distortion	-0.9%
Construction	4G 2P, AL6061

Subject to change without notice. Drawings not to scale.

Mid and Telephoto Lenses

Mid-range and telephoto lenses have maximum field of view between 5° and 80°. Primary tradeoffs with these lenses include low light, depth of field, and size.

Mid-Range

Lenses with moderate field of view provide angular resolution suitable for objects which are 3m-10m away. These lenses provide good depth of field and low light performance while meeting specific scene field of view requirements.



Telephoto

Lenses with a long effective focal length provide greater angular resolution. These lenses require larger elements to achieve comparable low light performance to shorter focal length lenses. Shallow depth of field must be taken into consideration when designing a system with a telephoto lens.

Related calculator link: commonlands.com/dof-calculator

- This calculator provides the depth of field from focal length, F#, and object distance. Functionality includes depth of focus, relative throughput, and nyquist frequency.

Mid-Range Lenses: Large Format

CIL059: 6mm Low Distortion M12 Lens

Commonlands.com/cil059

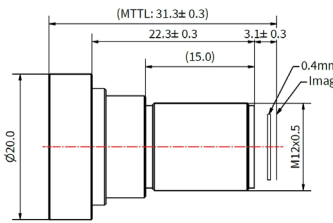


Image Circle (Format)	9.3mm 1/1.7"
EFL	5.9mm
Field of View	76°@8.8mm
F#	1.7 / 4.0 / 5.6
Resolution	8MP (2.1um)
Distortion	-4% / -2% TV
Construction	4G 4P, AL6061

CIL068: 6.8mm Low Distortion M12 Lens

Commonlands.com/cil068

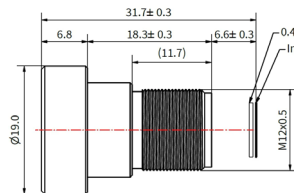


Image Circle (Format)	8.0mm 1/2"
EFL	6.8mm
Field of View	62°@8.0mm
F#	2.5
Resolution	12MP (1.55um)
Distortion	-3% / -1.5% TV
Construction	8G, AL6061

CIL078: 7.8mm Low Distortion M12 Lens

Commonlands.com/cil078

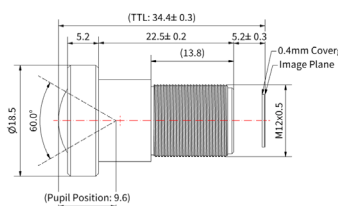


Image Circle (Format)	9.3mm 1/1.7"
EFL	7.8mm
Field of View	60°@8.8mm
F#	2.0
Resolution	12MP (1.85um)
Distortion	-2% / -1% TV
Construction	9G, AL6061

CIL085: 8.2mm Low Distortion M12 Lens

Commonlands.com/cil085

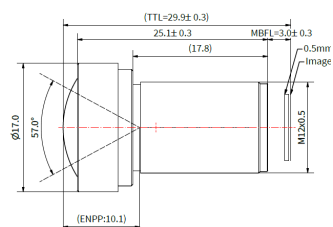


Image Circle (Format)	8.9mm 1/1.7"
EFL	8.2mm
Field of View	57°@8.8mm
F#	2.3 / 4.4
Resolution	12MP (1.85um)
Distortion	-1.5% / -1% TV
Construction	8G, AL6061

Subject to change without notice. Drawings not to scale.

Mid-Range and Telephoto Lenses: Ingress Protected

CIL061: 6.0mm Automotive M12 Lens

Commonlands.com/cil061

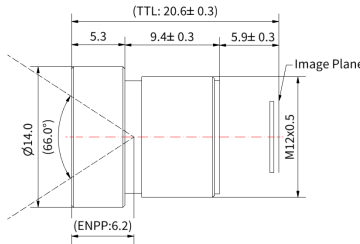
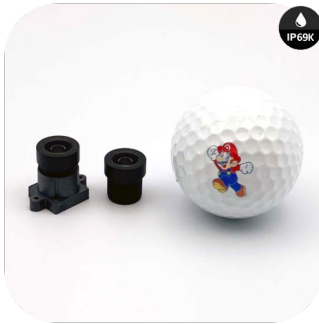


Image Circle (Format)	7.0mm 1/2.5"
EFL	6.0mm
Field of View	66°@7.0mm
F#	1.9
Resolution	3MP (3.0um)
Distortion	-8% / -5% TV
Construction	6G, AL6061

CIL079: 7.9mm Automotive M12 Lens

Commonlands.com/cil079

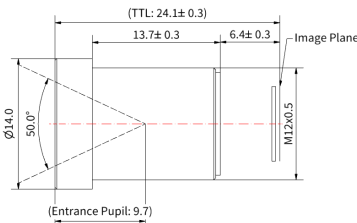


Image Circle (Format)	7.4mm 1/2.3"
EFL	7.9mm
Field of View	44°@6.0mm
F#	2.0
Resolution	3MP (2.1um)
Distortion	-7% / -4% TV
Construction	6G, AL6061

CIL120: 12.2mm IP67 M12 Lens

Commonlands.com/cil120

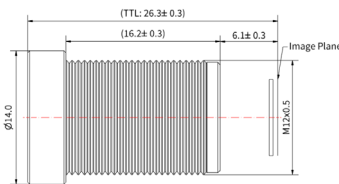
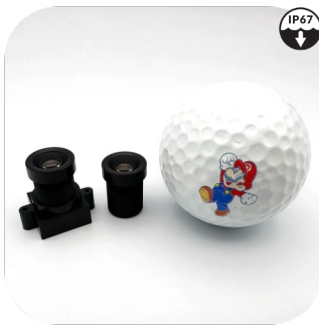


Image Circle (Format)	8.1mm 1/2"
EFL	12.2mm
Field of View	38°@7.8mm
F#	2.4
Resolution	8MP (1.85um)
Distortion	-6% / -2% F-Θ
Construction	5G, AL6061

Subject to change without notice. Drawings not to scale.

Telephoto Lenses

CIL122: 12.0mm IR Corrected Telephoto M12 Lens

Commonlands.com/cil122

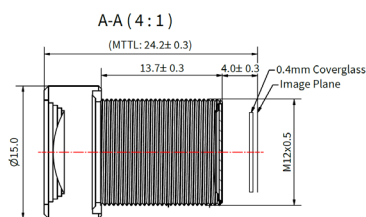


Image Circle (Format)	9.3mm+ 1/1.7"
EFL	12.0mm
Field of View	43°@9.2mm
F#	2.0
Resolution	8MP (2.1um)
Optical Distortion	-4% / -2% TV
Construction	8G, AL6061

CIL142: 14.2mm Finite Conjugate M12 Lens

Commonlands.com/cil142

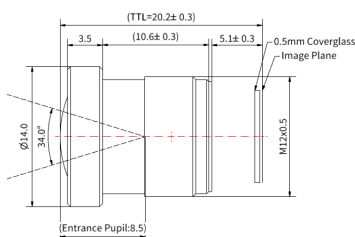


Image Circle (Format)	9.3mm 1/1.7"
EFL	14.2mm
Field of View	27°@7.0mm
F#	2.6 / 4.1 / 5.2
Resolution	12MP (1.85um)
Optical Distortion	-0.7%
Construction	6G, AL6061

CIL160: 16.0mm Telephoto M12 Lens

Commonlands.com/cil160

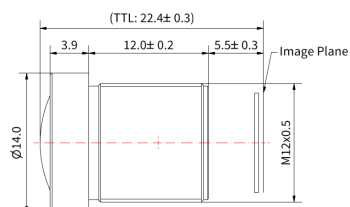


Image Circle (Format)	8.8mm +1/1.7"
EFL	16.0mm
Field of View	28°@8.0mm
F#	1.9 / 2.8 / 4.0 / 5.6
Resolution	12MP (1.85um)
Optical Distortion	-0.7%
Construction	6G, AL6061

CIL178: 17.8mm Telephoto M12 Lens

Commonlands.com/cil178

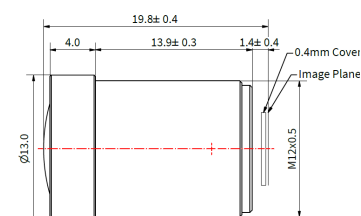


Image Circle (Format)	7.2mm 1/2.5"
EFL	17.8mm
Field of View	18°@6.0mm
F#	2.0
Resolution	2MP (3.0um)
Optical Distortion	+2%
Construction	2G2P, AL6061

Subject to change without notice. Drawings not to scale.

Telephoto Lenses

CIL121: 21.8mm Finite Conjugate M12 Lens

Commonlands.com/cil121

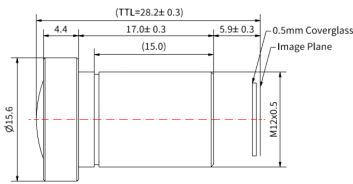


Image Circle (Format)	9.2mm 1/1.7"
EFL	21.8mm
Field of View	23°@8.8mm
F#	2.8 / 5.9
Resolution	12MP (1.85um)
Optical Distortion	<-1%
Construction	6G, AL6061

CIL250: 25.0mm IR Corrected Telephoto M12 Lens

Commonlands.com/cil250

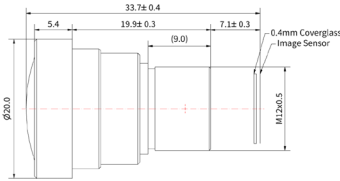


Image Circle (Format)	8.2mm 1/2"
EFL	26.0mm
Field of View	19°@8.0mm
F#	2.0
Resolution	8MP (3um)
Optical Distortion	<-1%
Construction	6G, AL6061

CIL350: 35.0mm Telephoto M12 Lens

Commonlands.com/cil350

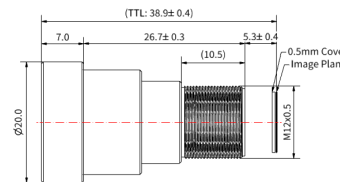


Image Circle (Format)	11mm 2/3"
EFL	35.0mm
Field of View	13°@8.0mm
F#	2.4
Resolution	12MP (2.1um)
Optical Distortion	-0.8%
Construction	All Glass, AL6061

CIL051: 50mm Telephoto M12 Lens

Commonlands.com/cil051

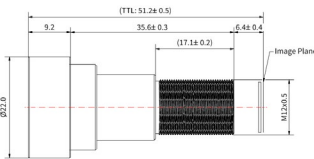


Image Circle (Format)	9.4mm+ 1/1.7"
EFL	50.0mm
Field of View	9°@7.5mm
F#	2.8
Resolution	12MP (1.85um)
Optical Distortion	-0.2%
Construction	All Glass, AL6061

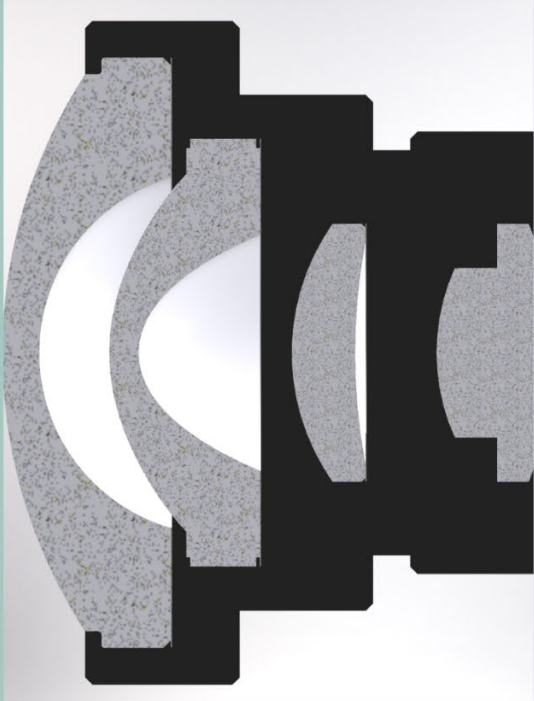
Subject to change without notice. Drawings not to scale.

OEM Customizations*



Pre-Assembly

We'll pre-thread lenses and holders then ship as a single part. This reduces image plane tilt, increases camera assembly throughput, and reduces anodization debris that can land on the sensor.



Mechanical

- Outer dimension change
- Active alignment flanges
- Ingress protection
- Hydrophobic coating



Optical

- Filters
- Higher F#
- Custom Design

Contact our team at engineering@commonlands.com for more details.

*Starting at 1000pcs/yr. Feasibility is part number and volume dependent.



Commonlands LLC is a US-owned and based optics company which provides high quality and cost effective M12 Lenses and C-Mount Lenses.

We provide:

- Western field application engineering and optical design support
- Accurate specifications, .STP files, mechanical drawings
- Complete quality control for optical, mechanical, and cosmetic
- Next day samples delivered across the US and 3-5 days to EMEA
- Volume production ready up to 100kpcs/yr



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