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Board lenses

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LENSATION provides free of charge consulting about lenses, illumination, optical components and Smart Cameras. In addition we offer a wide range of optical products.

We are fluent in English and German, but some of our people speak Korean, others Chinese or Japanese. As you can imagine, this opens doors in Asia. We can source asian products for you, be it optics or electronic parts.

Are you searching for products that you haven't been able to find yet? Ask us! What we can't offer you yet, we'll source for you. Name the product spec's and the target price - usually we can provide the desired product. And if 'your' product really isn't available, we'll design it for you! Exclusive OEM designs are possible, or just job order production. We care about your individual constraints such as product spec's, high quality and good prices.

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Distribution

Subject to change – errors excepted.

S-Mount Board Lenses (M12x0.5)

Lenses with a M12x0.5mm thread are officially called S-Mount lenses, though "M12 lenses" or simply "board lenses" are more common terms. These are the most common "mini lenses". Though we provide simple lenses too (our "economical" Range), we decided to offer the high quality, megapixel compatible variety of these lenses. Some lenses of the newest generation are even suitable for 5 Megapixel cameras.

While most of the lenses found on the internet claim to have an F-Stop of 2.0, few really have. Really light sensitive lenses in this size are hard to find, but we're proud to offer a whole range of even F1.2 lenses. Other unusual lenses you find here include board lenses with manual Iris and even variofocal board lenses are available. In case you need other threads, we can offer M17, M14, M13, M10, M8, M9, M7 lenses too.

Overview

(Mount: M12x0.5) LD = Low Distortion LS = Light Sensitive VF = Varifocal PH = Pinhole 1-5 = Megapixel

Lensagon No.	Image Format	Focal Length	Aperture	M.O.D.	Back Focal	Angle of View (diag.)	Weight	Note	IR corr.	IR cut option	Mega-pixel	Special	Page
BT1825	1/4"	**1.8**	2.5		4.60	170°				•			9
BT2020	1/4"	**2.0**	2.0		4.57	138.6°				•			9
BM2118	1/3"	**2.1**	1.8	0.3m	4.72	165°	8.0g		•		1		8
BT2120	1/3"	**2.1**	2.0		4.92	151°				•			9
BT2520	1/3"	**2.5**	2.0		5.18	140°				•			9
BM2820	1/3"	**2.8**	2.0	0.2m	5.29	122°	6.0g		•	•	1		8
BP2825	1/3"	**2.8**	2.5	0.2m	3.30	139°	6.0g		•	•	1	PH	7
BT2920	1/3"	**2.9**	2.0		5.02	138°				•			9
BM2920S118	1/1.8"	**2.95**	2.0	0.15m	7.85	178°	13.0g		•	•	1		8
BT3020C	1/3"	**3.0**	2.0		5.35	124°				•			9
BM3518S125ND	1/2.5"	**3.5**	1.8	0.2m	5.97	90°	12.0g	Dist. <1.9%	•		3	LD	7
BM3516ND	1/3"	**3.5**	1.6	0.2m	5.97	81°	10.0g	Dist. <1.9%	•		3	LD	7
BT3620	1/3"	**3.6**	2.0		5.00	100°				•			9
BM3618	1/3"	**3.6**	1.8	0.2m	6.59	100.2°	6.0g		•	•	1		8
BPM3718	1/3"	**3.7**	1.8	0.2m	3.50	83.2°	3.1g		•	•	1	PH	7
BM4018S118	1/1.8"	**4.0**	1.8	0.2m	8.00	101°	10.0g			•	3		6
B2M4016S12	1/2"	**4.0**	1.6	0.2m	7.20	146°	7.0g		•		2		6
BL4012DN	1/3"	**4.0**	1.2	0.2m	7.30	62.2°	21.0g		•			LS	8
MB4012	1/3"	**4.0**	1.2	0.2m	7.30	62.2°	34.0g	Manual iris				LS	8
BM4218	1/3"	**4.2**	1.8	0.2m	7.21	89°	7.0g		•	•	1		8
BT4320	1/3"	**4.3**	2.0		4.85	78°				•			9
BM4518S125ND	1/2.5"	**4.5**	1.8	0.2m	5.90	68°	13.0g	Dist. <1.9%	•	•	3	LD	7
BM4516ND	1/3"	**4.5**	1.6	0.2m	6.10	68°	10.0g	Dist. <1.9%	•		3	LD	7
BT4620	1/3"	**4.6**	2.0		6.63	80°				•			9
BM5518S12ND	1/1.8"	**5.5**	1.8	0.2m	6.87	71°	10.0g	Dist. <1.9%	•		3	LD	7
BM5516ND	1/3"	**5.5**	1.6	0.2m	7.00	58°	13.0g	Dist. <1.9%	•		3	LD	7
BM5828ND	1/3"	**5.8**	2.8	0.2m	3.05	46.4°	6.0g	Dist. <2.2%		•	1	LD	7

Lensagon No.	Image Format	Focal Length	Aperture	M.O.D.	Back Focal	Angle of View (diag.)	Weight	Note	IR corr.	IR cut option	Mega-pixel	Special	Page
BM6020S12	1/2"	**6.0**	2.0	0.2m	10.70	85°	6.0g				1.3		6
BSM6016S12	1/2"	**6.0**	1.6	0.2m	8.83	88°			•		2		6
B3M6020S12	1/2"	**6.0**	2.0		8.30	81°					3		6
BL6012	1/3"	**6.0**	1.2	0.2m	7.70	44.3°	21.0g					LS	8
MB6012	1/3"	**6.0**	1.2	0.2m	7.70	44.3°	33.0g	Manual iris				LS	8
BT6020	1/3"	**6.0**	2.0		8.07	58°				•			9
BM6018	1/3"	**6.0**	1.8	0.2m	8.75	60°	6.0g		•	•	1		8
B5M7630	1/1.8"	**7.6**	3.0	0.2m	3.65	58°	7.0g			•	5		6
BM8018S118ND	1/1.8"	**8.0**	1.8	0.2m	6.87	58°	15.0g	Dist. <1.9%	•	•	3	LD	7
BM8020S12	1/2"	**8.0**	2.0	0.2m	8.60	56°	6.0g				1.3		6
B3M8018S12	1/2"	**8.0**	1.8		7.90	50.5°					3		6
BSM8016S12	1/2"	**8.0**	1.6	0.2m	5.40	62°	6.0g		•		2		6
BM8018	1/3"	**8.0**	1.8	0.2m	5.40	45°	6.0g		•	•	1		8
BL8012	1/3"	**8.0**	1.2	0.2m	7.30	34.1°	32.5g					LS	8
MB8012	1/3"	**8.0**	1.2	0.2m	7.30	34.1°	33.0g	Manual iris				LS	8
BT8020	1/3"	**8.0**	2.0		7.05	52°				•			9
B5M8430N	1/1.8"	**8.4**	3.0		2.79	60°				•	5		6
B2M10030	1/2"	**10.0**	3.0	0.4m	7.89	46.6°	3.0g			•	2		6
BM10028S12	1/2"	**10.0**	2.8	0.4m	8.00	44°	6.0g				1.2		6
BM10428S12	1/2"	**10.4**	2.8	0.4m	7.86	43°	3.0g				1.2		6
B5M12056	1/1.8"	**12.0**	5.6	0.1m	8.57	41°	7.0g			•	5		6
B5M12028	1/1.8"	**12.0**	2.8	0.1m	8.57	41°	7.0g			•	5		6
BSM12016S12	1/2"	**12.0**	1.6	0.2m	7.20	38.6°	6.0g		•		2		6
BM12018	1/3"	**12.0**	1.8	0.2m	6.54	28.4°	6.0g		•	•	1		8
BT12020	1/3"	**12.0**	2.0		8.90	29°				•			9
BL12014	1/3"	**12.0**	1.4	0.2m	8.20	22.4°	28.0g					LS	8
MB12014	1/3"	**12.0**	1.4	0.2m	8.20	22.4°	34.0g	Manual iris				LS	8
B16020S12	1/2"	**16.0**	2.0	0.8m	12.30	27.8°	4.2g						7
BSM16016S12	1/2"	**16.0**	1.6	0.2m	6.58	24°	7.0g		•		2		6
MB16014	1/3"	**16.0**	1.4	0.2m	11.50	17.1°	34.0g	Manual iris				LS	8
BL16014	1/3"	**16.0**	1.4	0.2m	11.50	17.1°	16.0g					LS	8
BM16018	1/3"	**16.0**	1.8	0.2m	6.59	21°	6.0g		•	•	1		8
BT16020	1/3"	**16.0**	2.0		9.98	22°				•			9
B25020S12	1/2"	**25.0**	2.0	0.2m	11.80	18.2°	17.6g						7
BT25018S12DN	1/2" (1/3")	**25.0**	1.8		8.63	18.5° (14.0°)				•			9
B35020S12	1/2"	**35.0**	2.0	0.2m	18.90	13.0°	15.4g						7
B50020S12	1/2"	**50.0**	2.0	0.4m	33.90	9.2°	27.1g						7
BV266016	1/3"	**2.6 - 6.0**	1.6 - 2.4	0.1m	6.28	106.3° - 48.1°	70g	Varifocal				VF	9
BV358016	1/3"	**3.5 - 8.0**	1.6 - 2.4	0.1m	6.53	81.9° - 35.0°	48g	Varifocal				VF	9
BV409016	1/3"	**4.0 - 9.0**	1.6 - 2.4	0.1m	6.49	70.6° - 32.0°	55g	Varifocal				VF	9
BVM409014	1/3"	**4.0 - 9.0**	1.4	0.2m	5.40	60° - 30°	35g	Varifocal	•		1	VF	9
BVM5015014	1/3"	**5.0 - 15.0**	1.4	0.2m	6.85	41° - 19°	35g	Varifocal	•		1	VF	9
BV6020016	1/3"	**6.0 - 20**	1.6 - 2.4	0.1m	5.96	43.9° - 16.0°	64g	Varifocal				VF	9
BVM8020014	1/3"	**8.0 - 20.0**	1.4	0.2m	6.30	33° - 14.5°	35g	Varifocal	•		1	VF	9

Super Megapixel Board Lenses

BM4018S118 B3M6020S12 B5M7630 B3M8018S12 B5M8430N B2M10030 B5M12028 B5M12056

Lensagon No.	Image Format	Focal Length	Aperture	M.O.D.	Back Focal Length	Angle of View (diag.)	Weight	Note	IR corr.	IR cut option	Mega-pixel
BM4018S118	1/1.8"	4.0	1.8	0.2m	8.00	101°	10.0g			•	**3**
B3M6020S12	1/2"	6.0	2.0		8.30	81°					**3**
B5M7630	1/1.8"	7.6	3.0	0.2m	3.65	58°	7.0g			•	**5**
B3M8018S12	1/2"	8.0	1.8		7.90	50.5°					**3**
B5M8430N	1/1.8"	8.4	3.0		2.79	60°				•	**5**
B2M10030	1/2"	10.0	3.0	0.4m	7.89	46.6°	3.0g			•	**2**
B5M12028	1/1.8"	12.0	2.8	0.1m	8.57	41°	7.0g			•	**5**
B5M12056	1/1.8"	12.0	5.6	0.1m	8.57	41°	7.0g			•	**5**

Megapixel 1/2" Board Lenses

BSM4016S12 BSM6016S12 BSM8016S12 BSM12016S12 BSM16016S12

BM6020S12 BM8020S12 BM10028S12 BM10428S12

BSM-Series

Lensagon No.	Image Format	Focal Length	Aperture	M.O.D.	Back Focal Length	Angle of View (diag.)	Weight	Note	IR corr.	IR cut option	Mega-pixel
B2M4016S12	1/2"	4.0	1.6	0.2m	7.20	146°	7.0g		•		**2**
BSM6016S12	1/2"	6.0	1.6	0.2m	8.83	88°			•		**2**
BSM8016S12	1/2"	8.0	1.6	0.2m	5.40	62°	6.0g		•		**2**
BSM12016S12	1/2"	12.0	1.6	0.2m	7.20	38.6°	6.0g		•		**2**
BSM16016S12	1/2"	16.0	1.6	0.2m	6.58	24°	7.0g		•		**2**

BM-Series

BM6020S12	1/2"	6.0	2.0	0.2m	10.70	85°	6.0g				**1.3**
BM8020S12	1/2"	8.0	2.0	0.2m	8.60	56°	6.0g				**1.3**
BM10028S12	1/2"	10.0	2.8	0.4m	8.00	44°	6.0g				**1.2**
BM10428S12	1/2"	10.4	2.8	0.4m	7.86	43°	3.0g				**1.2**

1/2" Board Lenses

B16020S12 B25020S12 B35020S12 B50020S12

Lensagon No.	Image Format	Focal Length	Aperture	M.O.D.	Back Focal Length	Angle of View (diag.)	Weight	Note	IR corr.	IR cut option	Mega-pixel
B16020S12	1/2"	16.0	2.0	0.8m	12.30	27.8°	4.2g				
B25020S12	1/2"	25.0	2.0	0.2m	11.80	18.2°	17.6g				
B35020S12	1/2"	35.0	2.0	0.2m	18.90	13.0°	15.4g				
B50020S12	1/2"	50.0	2.0	0.4m	33.90	9.2°	27.1g				

Megapixel Low Distortion Board Lenses

BM3516ND BM3518S125ND BM4516ND BM4518S125ND BM5516ND BM5518S12ND BM5828ND BM8018S118ND

Lensagon No.	Image Format	Focal Length	Aperture	M.O.D.	Back Focal Length	Angle of View (diag.)	Weight	Note	IR corr.	IR cut option	Mega-pixel
BM3516ND	1/3"	3.5	1.6	0.2m	5.97	81°	10.0g	Dist. <1.9%	•		**3**
BM3518S125ND	1/2.5"	3.5	1.8	0.2m	5.97	90°	12.0g	Dist. <1.9%	•		**3**
BM4516ND	1/3"	4.5	1.6	0.2m	6.10	68°	10.0g	Dist. <1.9%	•		**3**
BM4518S125ND	1/2.5"	4.5	1.8	0.2m	5.90	68°	13.0g	Dist. <1.9%	•	•	**3**
BM5516ND	1/3"	5.5	1.6	0.2m	7.00	58°	13.0g	Dist. <1.9%	•		**3**
BM5518S12ND	1/1.8"	5.5	1.8	0.2m	6.87	71°	10.0g	Dist. <1.9%	•		**3**
BM5828ND	1/3"	5.8	2.8	0.2m	3.05	46.4°	6.0g	Dist. <2.2%		•	**1**
BM8018S118ND	1/1.8"	8.0	1.8	0.2m	6.87	58°	15.0g	Dist. <1.9%	•	•	**3**

Pinhole Board Lens

BP2825 BPM3718

Lensagon No.	Image Format	Focal Length	Aperture	M.O.D.	Back Focal Length	Angle of View (diag)	Weight	IR corr.	IR cut option	Mega-pixel
BP2825	1/3"	2.8	2.5	0.2m	3.30	139°	6.0g	•	•	**1**
BPM3718	1/3"	3.7	1.8	0.2m	3.50	83.2°	3.1g	•	•	**1**

Megapixel Board Lenses

BM2118 BM2820 BM2920S118 BM3618 BM4218 BM6018 BM8018 BM12018 BM16018

Lensagon No.	Image Format	Focal Length	Aperture	M.O.D.	Back Focal Length	Angle of View (diag.)	Weight	Note	IR corr.	IR cut option	Mega-pixel
BM2118	1/3"	2.1	1.8	0.3m	4.72	165°	8.0g		•		**1**
BM2820	1/3"	2.8	2.0	0.2m	5.29	122°	6.0g		•	•	**1**
BM2920S118	1/1.8"	2.95	2.0	0.15m	7.85	178°	13.0g		•	•	**1**
BM3618	1/3"	3.6	1.8	0.2m	6.59	100.2°	6.0g		•	•	**1**
BM4218	1/3"	4.2	1.8	0.2m	7.21	89°	7.0g		•	•	**1**
BM6018	1/3"	6.0	1.8	0.2m	8.75	60°	6.0g		•	•	**1**
BM8018	1/3"	8.0	1.8	0.2m	5.40	45°	6.0g		•	•	**1**
BM12018	1/3"	12.0	1.8	0.2m	6.54	28.4°	6.0g		•	•	**1**
BM16018	1/3"	16.0	1.8	0.2m	6.59	21°	6.0g		•	•	**1**

Light Sensitive Board Lenses

BL4012 BL6012 BL8012 BL12014 BL16014 MB4012 MB6012 MB8012 MB12014 MB16014

Lensagon No.	Image Format	Focal Length	Aperture	M.O.D.	Back Focal Length	Angle of View (diag.)	Weight	Note	IR corr.	IR cut option	Mega-pixel
BL4012DN	1/3"	4.0	1.2	0.2m	7.30	62.2°	21.0g		•		
BL6012	1/3"	6.0	1.2	0.2m	7.70	44.3°	21.0g				
BL8012	1/3"	8.0	1.2	0.2m	7.30	34.1°	32.5g				
BL12014	1/3"	12.0	1.4	0.2m	8.20	22.4°	28.0g				
BL16014	1/3"	16.0	1.4	0.2m	11.50	17.1°	16.0g				

with Manual Iris

Lensagon No.	Image Format	Focal Length	Aperture	M.O.D.	Back Focal Length	Angle of View (diag.)	Weight	Note	IR corr.	IR cut option	Mega-pixel
MB4012	1/3"	4.0	1.2	0.2m	7.30	62.2°	34.0g	Manual iris			
MB6012	1/3"	6.0	1.2	0.2m	7.70	44.3°	33.0g	Manual iris			
MB8012	1/3"	8.0	1.2	0.2m	7.30	34.1°	33.0g	Manual iris			
MB12014	1/3"	12.0	1.4	0.2m	8.20	22.4°	34.0g	Manual iris			
MB16014	1/3"	16.0	1.4	0.2m	11.50	17.1°	34.0g	Manual iris			

Varifocal Board Lenses

BVM409014 BVM5015014 BVM8020014 BV266016 BV358016 BV409016 BV6020016

Lensagon No.	Image Format	Focal Length	Aperture	M.O.D.	Back Focal Length	Angle of View (diag.)	Weight	Note	IR corr.	IR cut option	Mega-pixel
BV266016	1/3"	2.6 - 6.0	1.6 - 2.4	0.1m	6.28	106.3° - 48.1°	70g				
BV6020016	1/3"	6.0 - 20	1.6 - 2.4	0.1m	5.96	43.9° - 16.0°	64g				
BV358016	1/3"	3.5 - 8.0	1.6 - 2.4	0.1m	6.53	81.9° - 35.0°	48g				
BV409016	1/3"	4.0 - 9.0	1.6 - 2.4	0.1m	6.49	70.6° - 32.0°	55g				

Megapixel

Lensagon No.	Image Format	Focal Length	Aperture	M.O.D.	Back Focal Length	Angle of View (diag.)	Weight	Note	IR corr.	IR cut option	Mega-pixel
BVM409014	1/3"	4.0 - 9.0	1.4	0.2m	5.40	60° - 30°	35g		•		**1**
BVM5015014	1/3"	5.0 - 15.0	1.4	0.2m	6.85	41° - 19°	35g		•		**1**
BVM8020014	1/3"	8.0 - 20.0	1.4	0.2m	6.30	33° - 14.5°	35g		•		**1**

Standard Board Lenses

Lensation has various choice of standard M12x0.5 lenses.
If your enquiry is about a lens with IR cut filter, please add the letter „C" behind the model name.

Lensagon No.	Format	Mount	Focal Length	Aperture	Angle of View (D)	Back Focal length	With IR cut
BT1825	1/4"	M12 x 0.5	1.8mm	1:2.5	170°	4.60mm	**BT1825C**
BT2020	1/4"	M12 x 0.5	2.0mm	1:2.0	138.6°	4.57mm	**BT2020C**
BT2120	1/3"	M12 x 0.5	2.1mm	1:2.0	151°	4.92mm	**BT2120C**
BT2520	1/3"	M12 x 0.5	2.5mm	1:2.0	140°	5.18mm	**BT2520C**
BT2920	1/3"	M12 x 0.5	2.9mm	1:2.0	138°	5.02mm	**BT2920C**
BT3020C	1/3"	M12 x 0.5	3.0mm	1:2.0	124°	5.35mm	**BT3020C**
BT3620	1/3"	M12 x 0.5	3.6mm	1:2.0	100°	5.00mm	**BT3620C**
BT4320	1/3"	M12 x 0.5	4.3mm	1:2.0	78°	4.85mm	**BT4320C**
BT4620	1/3"	M12 x 0.5	4.6mm	1:2.0	80°	6.63mm	**BT4620C**
BT6020	1/3"	M12 x 0.5	6.0mm	1:2.0	58°	8.07mm	**BT6020C**
BT8020	1/3"	M12 x 0.5	8.0mm	1:2.0	52°	7.05mm	**BT8020C**
BT12020	1/3"	M12 x 0.5	12.0mm	1:2.0	29°	8.90mm	**BT12020C**
BT16020	1/3"	M12 x 0.5	16.0mm	1:2.0	22°	9.98mm	**BT16020C**
BT25018S12DN	1/2" (1/3")	M12 x 0.5	25.0mm	1:1.8	18.5° (14.0°)	8.63mm	---

Fisheye Board Lenses

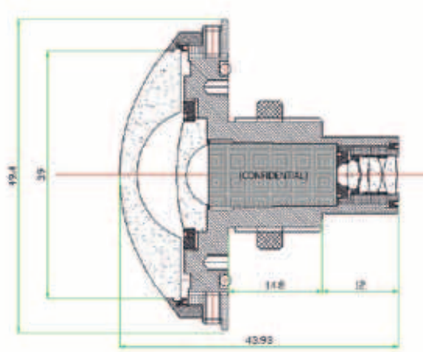
BFM1320 BFM1520 BFM2320 BF2M2020 BF2M2020S23 BF2M12520 BF2M15520 BF5M0928ND BF5M1528ND BF5M1528ND-R1

Lensagon No.	Image Format	Focal Length	Aperture	M.O.D.	Back Focal Length	Angle of View (diag.)	Weight	Note	IR corr.	Image Circle	Mega-pixel
BFM1320	1/4"	1.30	2.0	0.05m	4.73	185°	11g		•	2.450	**1**
BFM1520	1/3"	1.47	2.0	0.05m	4.57	195°	10.5g		•	3.400	**1**
BFM2320	1/2"	2.30	2.0	0.15m	4.99	185°	10.8g		•	4.540	**1**
BF2M2020	1/3"	2.00	2.0	0.08m	6.17	175°	18.5g		•	6.000	**2**
BF2M2020S23	2/3"	2.00	2.0	0.08m	6.17	195°	18g		•	6.540	**2**
BF2M12520	1/3"	1.25	2.0	0.15m	6.44	185 °	14 g	Chief ray angle 8.7°	•	3.600	**2**
BF2M15520	1/2"	1.55	2.0	0.15m	6.43	185 °	19 g		•	4.800	**2**
BF5M0928ND	1/2", 1/3"	0.98	2.8	0.05mm	5.73	240° H	94 g	Dist.<5%, F-Theta	•	3.669	**5**
BF5M1528ND	1/2", 1/3"	1.57	2.8	0.05mm	5.76	190° H	25 g	F-Theta	•	4.733	**5**

240° Ultra Wide Angle Fisheye Lens

Our newly developed BF5M0928ND with its exceptionally high opening angle of 240 degrees and extremely low distortion, goes beyond the limits of normal expectation. This is made possible through a complex lens design and high precision manufacturing, making it suitable for up to 5 megapixel sensors.

5 MegaPixel



- Sensing Area: 1/3"
- Focal Length: 0.981mm
- Back Focal Length: 5.73mm
- F/NO: 2.8
- Iris: Fixed
- Image Circle: 3.669mm
- Lens Construction: 9 components, 8 groups
- Field Angle(Horizontal): 240°
- Min. Object Distance: 0.05mm
- Weight: 94g
- Day & Night Lens

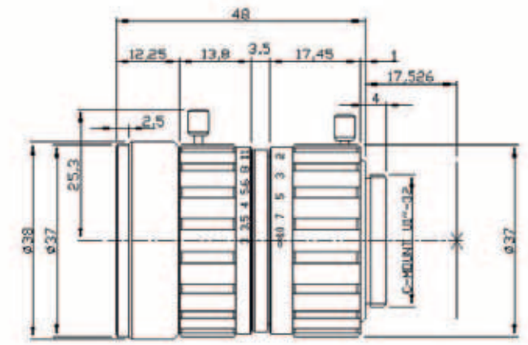
10 Megapixel Low Distortion C-Mount Lens

Lensation proudly presents C10M1628, the first C-Mount lens for the 10 Megapixel ranges. Sensors up to 2/3" and down to 2.2um pixel size can be used with this masterpiece of optical design. If you reached the resolution limit of Megapixel lenses before, C10M1628 is now your best choice.

Also available as 5 Megapixel type (Lensagon C5M1628).

Lensagon No.		C10M1628			
Fomat		2/3"			
Mount		C			
Focal length		16mm			
Max. Aperture Ratio		1: 2.8			
Iris Range		F2.8 - F22			
Minimum Object Distance		0.35m - ∞ (Optimum distance : 0.5 – 1.5m)			
Operation	Iris	Manual with Lock Screw			
	Focus	Manual with Lock Screw			
Angle of View	Diagonal	37.9°			
	Horizontal	30.7°			
	Vertical	23.3°			
Applicable Wavelength		435nm – 656nm			
Resolution (at Image side)		2.4µm			
Resolution (at Object side)	WD=1.5m	0.175mm (Field of View : 440mm x 330mm)			
	WD=0.5m	0.12mm (Field of View : 290mm x 220mm)			
Optical Distortion		≤ 0.1%			
Others	WD	1.5m	0.7m	0.5m	0.35m
	NA	0.019	0.004	0.0055	0.0078
	Magnification	0.0106	0.0225	0.0313	0.0443
Flange Back Length		17.53mm			
Filter Size		Ø 34.0mm P=0.5mm			
Weight		105g			
Working Temperature Range		-10°C - +50°C			

Dimension



Line Scan Lenses for Wide Field of View

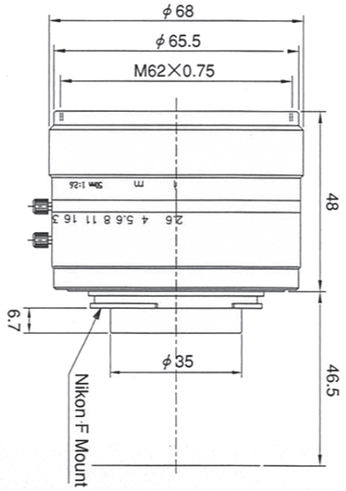
Our large format lens series has been specifically designed for the line-scan and large area sensor market. Covering up to 62mm sensors, these low distortion lenses are ready for challenging applications.

Features:

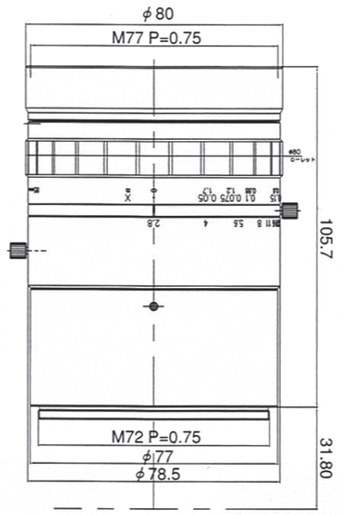
- Working distance and magnification are adjustable
- Suitable for long working distance
- Designed for machine vision application
- FLS8528 is compatible with M72 mount
- Suitable for various applications such as printing, PC, glass, textile etc..

Lensagon No.	F No.	Focal length	Range of WD	Magnification	Distortion	Max. comp. CCD	Mount
FLS5026	2.6	50mm	0.32m~∞	0.18x	0.23%	Ø 45mm	F
FLS8528	2.8	85mm	0.46m~∞	0.2x	0.04%	Ø 62mm	F or M72

FLS5026



FLS8528



Indicated specifications are design values.

LENSATION • Imaging Products • 2010/3

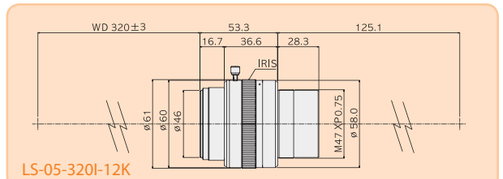
Lensagon FA Lenses

LS-12K Series: Line Scan Lenses for 8K to 12K line CCD

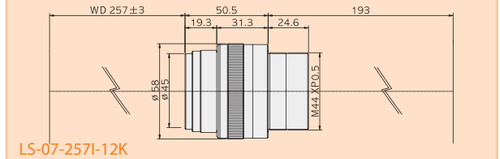
WD 50 mm - 320 mm

Lensagon No.	Mag.	WD	D.O.F	Res. (Obj.)	NA	CCD size	M	F No.	Optical Distortion (%)
LS-05-320I-12K	0.5X	320 mm	480	8.1 µm	0.045	12k(5u)	C	6	0.08
LS-07-257I-12K	0.7X	257 mm	408	9.6 µm	0.035	12k(5u)	C	10	0.01
LS-10-202I-12K	1.0X	202 mm	100	6.7 µm	0.05	12k(5u)	C	10	0.04
LS-14-168I-12K	1.4X	168 mm	113	5.4 µm	0.063	12k(5u)	C	11.1	0.02
LS-20-50I-12K	2.0X	50 mm	45	3.1 µm	0.11	12k(5u)	C	9.1	0.03
LS-20-133I-12K	2.0X	133 mm	60.3	4.04 µm	0.0832	12k(5u)	C	12.06	0.03
LS-35-88I-12K	3.5X	88 mm	41	2.4 µm	0.14	12k(5u)	C	12.5	0.05

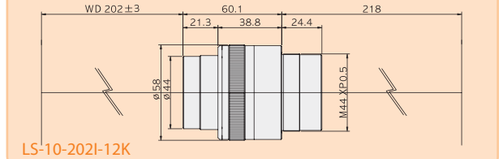
- High resolution & high contrast optical design
- Can be applied from 8K to 12K line CCD
- Low distortion for excellent image quality
- Large limage circle up to 61.4mm(12K @ 5um)
- Magnification varies from 0.5X to 3.5X



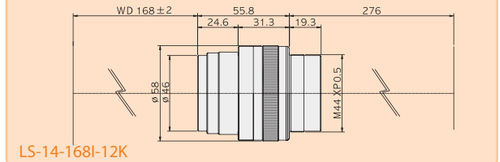
LS-05-320I-12K



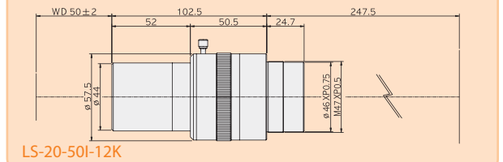
LS-07-257I-12K



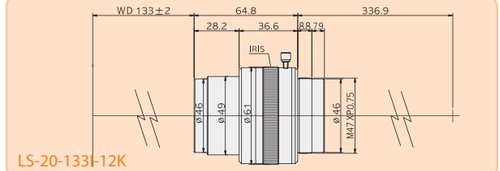
LS-10-202I-12K



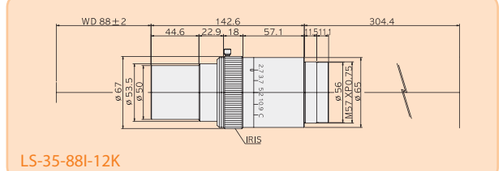
LS-14-168I-12K



LS-20-50I-12K



LS-20-133I-12K

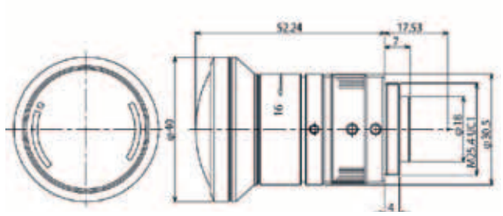


LS-35-88I-12K

2 Megapixel F-Theta Fisheye Lens

Lensation presents this new 185° fish eye lens for 2 megapixel compatible 1/2" cameras. This new model offers much improved image clarity with a greater resolution at both the image centre and peripheral areas.

This kind of high precision lens will be needed more and more in all kinds of applications. For example quality control inspection machines, weather inspection, and most forms of security applications

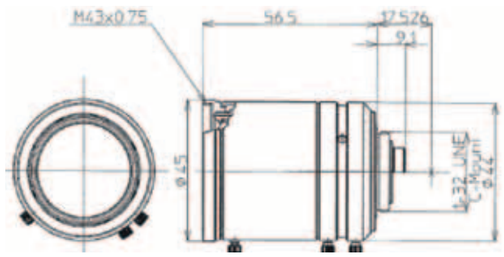


Lensagon No.		CF2M1414		
Mount		C-Mount		
Image Format		1/2"		
Focal length		1.4mm		
Max. Aperture		1:1.4		
Iris Range		F1.4 – F16		
Effective Image Plane		Ø 4.8 (1/2" vertical measurement)		
Angle of view		Horizontal	Vertical	Diagonal
Sensor size	1/4"	138.8°	104.1°	173.5°
	1/3"	185°	138.8°	185°
	1/2"	185°	185°	185°
Central resolution		200 lp/mm		
Peripheral area resolution		120 lp/mm		
Image		Upright / standing image		
Focus Function		0.2m ~ ∞		
Optical Axis Adjustment		Lockable Optimal Image Quality by 3 (m2.5) Screws		
Back Focal Length		10.53mm		
Dimension		Ø 40 x 52.3mm		
Weight		102g		

Megapixel Low Distortion Varifocal Lens

The CVM0411ND maintains straight lines in wide angle images!

Where "normal" 4.5mm lenses for 1/2" have a distortion of between 20% and 30%, this brand new aspherical lens has a distortion of below 0.1% (wide angle) and 0.26% (tele) on a 1/2" sensor.

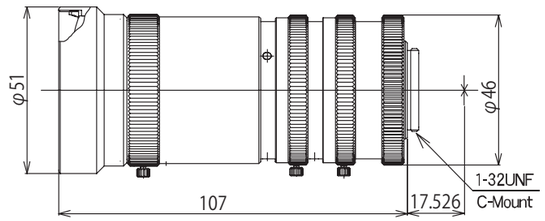


Lensagon No.		CVM0411ND		
Mount		C-Mount		
Image Format		1/1.8"		
Focal Length		4.4 ~ 11 mm		
Maximum Aperture		F1.6		
Iris Range		F1.6~F16		
Image Size		Ø9 5.4 x 7.2 mm		
Back Focal Length		W 8.75 T 14.48 in air		
Flange focal length		17.526mm		
Min. Working Distance		0.3m		
Angle of View		Horizontal	Vertical	Diagonal
Sensor size	1/1.8"	W 76.6° T 36.7°	W 61.2° T 28.0°	W 89.4° T 44.8°
	1/2"	W 70.1° T 32.9°	W 55.5° T 25.0°	W 82.5° T 40.4°
Lens Construction		7 Groups, 9 Elements		
Clear Aperture	front	Ø 30.0		
	rear	Ø 8.0		
Exit Pupil Position		W-61.4m T-22.3mm		
Filter Size		M43mm P=0.75		
Distortion		1/1.8" W-0.2% T 0.35% 1/2" W-0.1% T 0.26%		
Weight		135g		
Operating Temperature		-10°~50°		

Megapixel Extra Low Distortion Varifocal Lens

The CVM1040ND produces images with virtually zero distortion.

Utilising advanced lens technology to XD (eXtra low Dispersion) glass and aspherical lens, this new multi-megapixel lens will pave the way for more possibilities in applications such as high end surveillance.

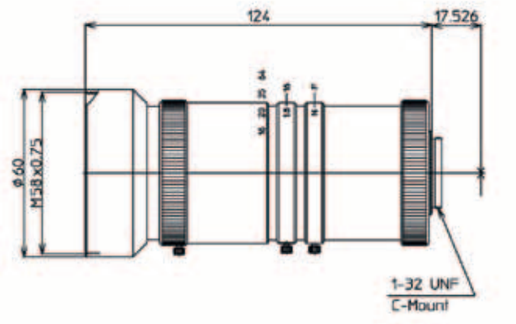


Lensagon No.		CVM1040ND	
Mount		C-Mount	
Image Format		1/1.8"	
Focal length		10 ~ 40 mm	
Max. Aperture		1:1.6	
Iris Range		F1.6 – F16	
Image size		Ø9 5.4 x 7.2 mm	
Back Focal Length		16.6 ~ 20.0 mm (in air)	
Flange focal length		17.526 mm	
Field of view		Wide	Tele
Sensor size	1/1.8"	39.5 x 22.5 mm	10.5 x 7.9 mm
	1/2"	35.3 x 26.8 mm	9.4 x 7.0 mm
Min. Working Distance		0.5m	
Lens Construction		9 Groups, 13 Elements	
Clear Aperture		Front Ø 44.0 Rear Ø 16.0	
Exit Pupil Position		W -1594mm T -524mm	
Filter Size		M49mm P=0.75	
TV Distortion		W -0.17% T 0.1%	
Weight		280g	
Operating Temperature		-10°~50°	

Megapixel Low Distortion Varifocal Lens

Lensation introduces the CVM1664NDGS, a new megapixel varifocal lens designed for 1" and 1/1.8" megapixel cameras.

This varifocal lens has a compact design and low distortion.



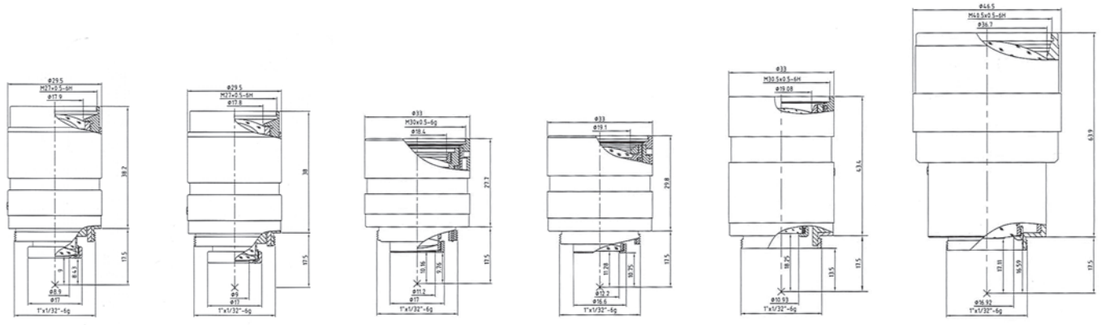
Lensagon No.		CVM1664NDGS
Mount		C-Mount
Image Format		1/1"
Focal Length		16 ~ 64 mm
Maximum Aperture		F1.8
Iris Range		F1.8~F16
Back Focal Length		W 28.2 T 33.6 (in air)
Flange focal length		17.526mm
Min. Working Distance		1.0 m
Angle of view / Sensor size	1"	45.9 ~ 11.7°
	2/3"	31.3 ~ 8.1°
	1/2"	22.7 ~ 5.9°
	1/3"	17.0 ~ 4.4°
Operation	Focus	Manual
	Iris	Manual
	Zoom	Manual
Filter Size		M43mm P=0.75
Weight		370g
Operating Temperature		-10°~50°

New Megapixel C-Mount Lenses C3M Series

Our new 3 megapixel "C3M" lenses were developed for high resolution and excellent brightness, to match the improvement in machine vision systems. They bring the best quality results for your application.

Features:
- Compatible with over 3.000.000 pixel CCDs
- Low optical distortion
- High performance and excellent value for money
- Rich selection covering a wide range of focal length
- Focal length 4mm and 6mm coming soon!

Lensagon No.		C3M0814	C3M1216	C3M2518	C3M3520	C3M5025	C3M7528
Image Format		1/1.8"	2/3"	2/3"	2/3"	2/3"	1"
Mount		C	C	C	C	C	C
Focal Length		8mm	12mm	25mm	35mm	50mm	75mm
Aperture		1:1.4	1:1.6	1:1.8	1:2.0	1:2.5	1:2.8
Focus		Manual	Manual	Manual	Manual	Manual	Manual
Iris		Manual	Manual	Manual	Manual	Manual	Manual
Angle of View (HxV)	1/3"	33.2° x 25.2°	22.4° x 17.4°	10.6° x 8.1°	7.5° x 5.5°	5.3° x 4.7°	3.4° x 2.5°
	1/2"	43.4° x 33.2°	29.5° x 22.4°	14.4° x 10.6°	10.3° x 7.5°	7.2° x 5.3°	4.5° x 3.4°
	1/1.8"	48.3" x 36.4°	33.2° 24.6°	16.2° x 12.9°	11.4° x 8.4°	8.1° x 6.5°	5.3° x 4.4°
	2/3"	-	40.2° x 15.2°	19.6° x 15.2°	14.2° x 10.5°	10.3° x 7.3°	6.43° x 5.2°
	1"	-	-	-	-	-	9.5° x 7.2°
Back Focal Length		9mm	8.4mm	10.2mm	11.3mm	18.25mm	17.11mm
Dimensions (Ø x L) mm		29.5 x 38.2	29.5 x 38	33 x 27.7	33 x 29.8	33 x 43.4	46.5 x 63.9
Weight		64.8g	68.2g	55g	56g	79g	-



C3M0814 C3M1216 C3M2518 C3M3520 C3M5025 C3M7528

Megapixel Low distortion CCTV Lenses (ND series)

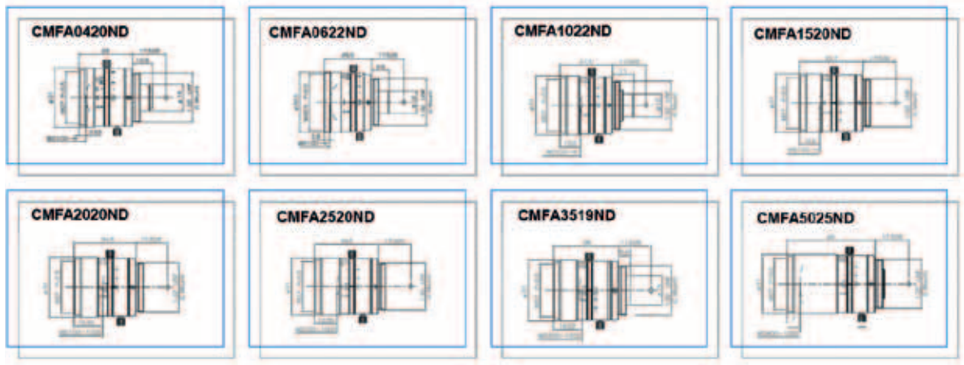
Features
- High resolution, compatible with CCDs of over 1,000,000 pixel
- High performance at less than WD500mm
- Low color aberration
- Low TV distortion
- Micro-photography without extension ring

1/2"format (ND series)

Lensagon No.	Focal length	F No	Range of WD	TV distortion	Angle of View (VxH)	Filter screw	Format
CMFA0420ND	4mm	2.0	0.1m~∞	0.91%	59.96°x75.14°	M27 P=0.5	1/2"
CMFA0622ND	6mm	2.2	0.1m~∞	-0.01%	40.47°x52.35°	M30.5 P=0.5	1/2"
CMFA1022ND	10mm	2.2	0.1m~∞	-0.08%	26.31°x34.61°	M27 P=0.5	1/2"

2/3"format (ND series)

Lensagon No.	Focal length	F No	Range of WD	TV distortion	Angle of View (VxH)	Filter screw	Format
CMFA1520ND	15mm	2.0	0.1m~∞	-0.09%	24.11°x31.79°	M27 P=0.5	2/3"
CMFA2020ND	20mm	2.0	0.1m~1m	-0.10%	18.20°x24.11°	M27 P=0.5	2/3"
CMFA2520ND	25mm	2.0	0.15m~1m	-0.01%	14.75°x19.58°	M27 P=0.5	2/3"
CMFA3020ND	30mm	2.0	0.2m~1m	-0.02%	12.55°x16.69°	M27 P=0.5	2/3"
CMFA3519ND	35mm	1.9	0.3m~1m	-0.03%	10.77°x14.32°	M27 P=0.5	2/3"
CMFA5025ND	50mm	2.5	0.4m~1m	-0.03%	7.82°x10.38°	M27 P=0.5	2/3"
CMFA7538ND	75mm	3.8	0.4m~1m	-0.01%	5.11°x6.81°	M27 P=0.5	2/3"



Megapixel High Resolution CCTV Lenses (MJ series)

Lensagon No.	Focal length	F No	Range of WD	TV distortion	Angle of View (VxH)	Filter screw	Format
CM0614MJ	6mm	1.4	0.2m~∞	-0.96%	44.3°x57.4°	M30.5 P=0.5	1/2"
CM1614MJ	16mm	1.4	0.25m~∞	-0.28%	23.3°x30.7°	M25.5 P=0.5	2/3"
CM2514MJ	25mm	1.4	0.25m~∞	-0.3%	15.1°x20.1°	M25.5 P=0.5	2/3"
CM3520MJ	35mm	2.0	0.25m~∞	-0.2%	10.4°x14.3°	M25.5 P=0.5	2/3"
CM5028MJ	50mm	2.8	0.5m~∞	-0.2%	7.4°x9.9°	M25.5 P=0.5	2/3"

High Quality C-Mount Lenses

Features
- Cover a wide range of uses from inspection to factory automation
- Vibration-resistant focus and iris locks available
- Compatible with 1/3", 1/2", 2/3", 1" 400,000 pixel cameras
- C-Mount

1/2" format

Lensagon No.	Focal length	F No	Operation Range	Angle of View (V x H)	Filter screw	Format
CY0316	3.5mm	1.6	0.1m~∞	69.0°x85.0°	M43 P=0.75	1/2"
CY0614	6mm	1.4	0.2m~∞	42.0°x54.5°	M27 P=0.5	1/2"
CY1214	12mm	1,4	0.3m~∞	22.0°x29.0°	M27 P=0.5	1/2"

2/3" format

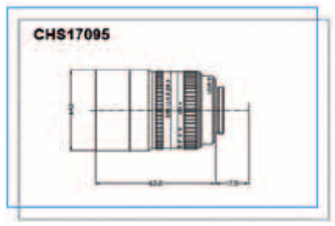
Lensagon No.	Focal length	F No	Operation Range	Angle of View (V x H)	Filter screw	Format
CY0813	8mm	1.3	0.2m~∞	45.0°x57.6°	M25.5 P=0.5	2/3"
CY1614	16mm	1.4	0.4m~∞	23.0°x30.0°	M27 P=0.5	2/3"
CY2514	25mm	1.4	0.5m~∞	21.7°x28.5°	M27 P=0.5	2/3"
CY3519	35mm	1.9	0.5m~∞	10.8°x14.4°	M27 P=0.5	2/3"
CY5018	50mm	1.8	1m~∞	7.8°x10.4°	M30.5 P=0.5	2/3"
CY7527	75mm	2.7	1m~∞	4.9°x6.5°	M30.5 P=0.5	2/3"
CY10035	100mm	3.5	1m~∞	3.8°x5.0°	M30.5 P=0.5	2/3"

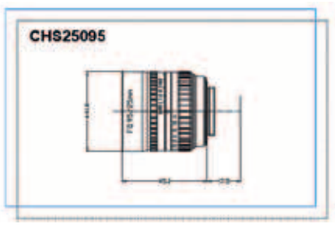
Megapixel High Resolution 1" C-Mount Lenses

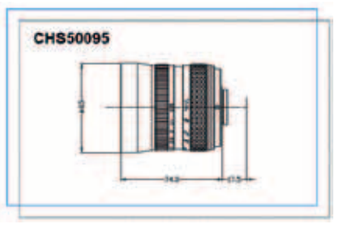
Lensagon No.	Focal length	F No	Operation Range	Angle of View (V x H)	Filter screw	Format
CM0814GS	8mm	1.4	0.1m~∞	79.7° x63.0°	M55 P=0.75	1"
CM1214GS	12mm	1.4	0.3m~∞	55.6°x42.5°	M27 P=0.5	1"
CM1614GS	16mm	1.4	0.3m~∞	44.3°x33.6°	M35.5 P=0.5	1"
CM2514GS	25mm	1.4	0.3m~∞	29.3°x22.0°	M35.5 P=0.75	1"
CM3526GS	35mm	2.6	180mm~∞	19.0°x19.4°	M49 P=0.75	1"
CM5026GS	50mm	2.6	250mm~1000mm	13.3°x13.6°	M62 P=0.75	1"

High Speed F0.95 C-Mount Lenses

Lensagon No.	Focal length	F No	Operation Range	Angle of View (V x H)	Filter screw	Format
CHS17095	17mm	0.95	0.5m~∞	22.0° x29.0°	M40.5 P=0.5	2/3"
CHS25095	25mm	0.95	0.5m~∞	21.7°x28.7°	M40.5 P=0.5	1"
CHS50095	50mm	0.95	0.7m~∞	11.0°x14.6°	M62.0 P=0.75	1"







TC5M Series: 5 Megapixel Telecentric, Ultra High Resolution

Middle WD (65mm)

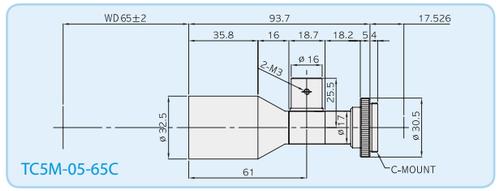
In combination with Megapixel cameras (up to 2/3" CCD), you will get high-quality images.

Features
- Designed for 5M CCD camera (3.45µm/pixel)
- Ultra High resolution and contrast with high NA
- Very low distortion in whole field
- Compact design with coaxial illumination (option)
- High telecentricity, No perspective error

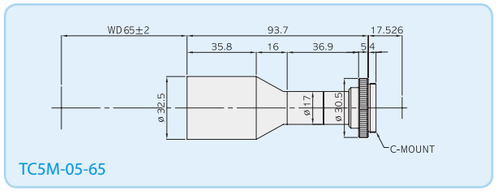
Lensagon No.	Mag.	WD	D.O.F	Res. (Obj.)	NA	CCD size (max.)	M	F No.	Telecentricity (< Degree)	Optical Distortion (%)
TC5M-05-65/C	0.5x	65 mm	1.0 mm	8.4µm	0.04	2/3"	C	6.25	0.02	0.17
TC5M-08-65/C	0.8x	65 mm	390.6µm	5.25µm	0.064	2/3"	C	6.25	0.02	0.13
TC5M-10-65/C	1.0x	65 mm	285.6µm	4.8µm	0.07	2/3"	C	7.14	0.022	0.16
TC5M-20-65/C TC5M-20-65I/IC	2.0x	65 mm	83µm	2.8µm	0.12	2/3"	C	8.3	0.03	0.02
TC5M-30-65/C TC5M-30-65I/IC	3.0x	65 mm	42.7µm	2.15µm	0.156	2/3"	C	9.6	0.02	0.05
TC5M-40-65/C TC5M-40-65I/IC	4.0x	65 mm	31.3µm	2.09µm	0.16	2/3"	C	12.5	0.02	0.03

I= Manual Iris, C= Coaxial, IC= Both

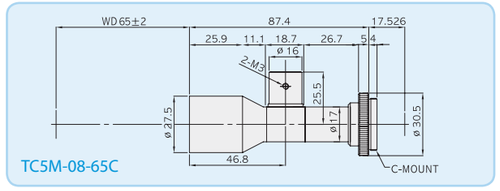
* DOF Calculation : Permissible circle of confusion 20µm



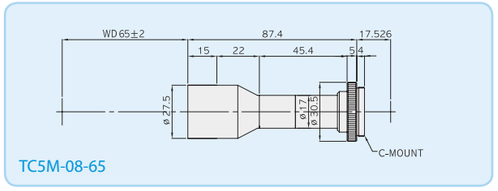
TC5M-05-65C



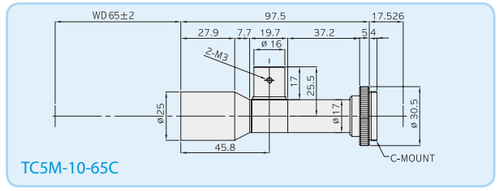
TC5M-05-65



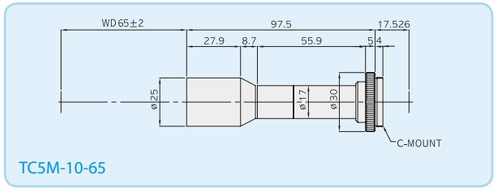
TC5M-08-65C



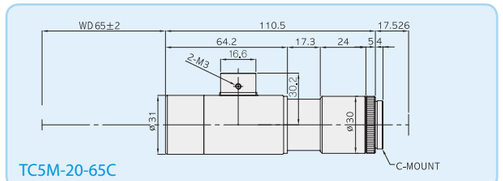
TC5M-08-65



TC5M-10-65C



TC5M-10-65



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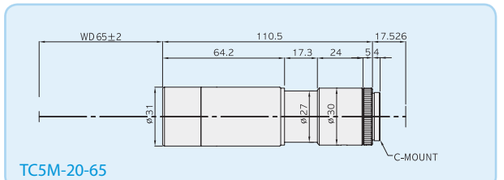

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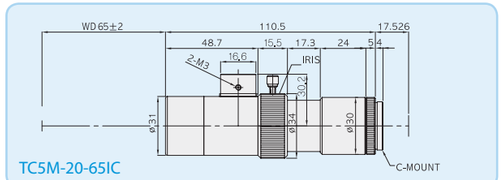
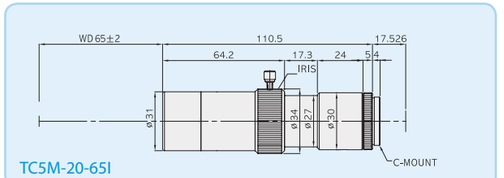
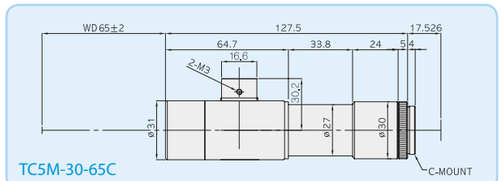


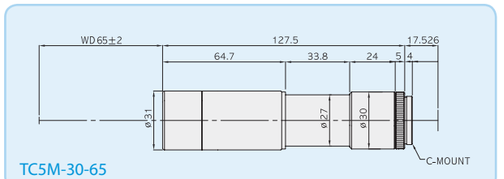
TC5M-20-65IC



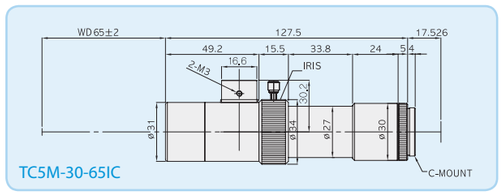
TC5M-20-65I



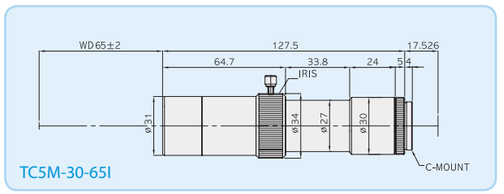
TC5M-30-65C



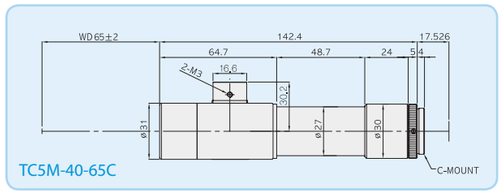
TC5M-30-65



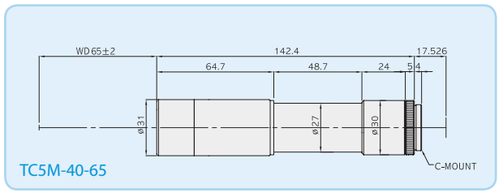
TC5M-30-65IC



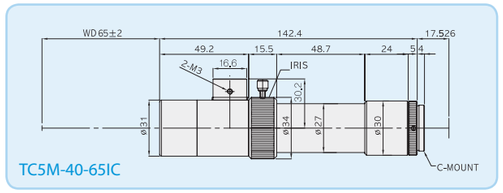
TC5M-30-65I



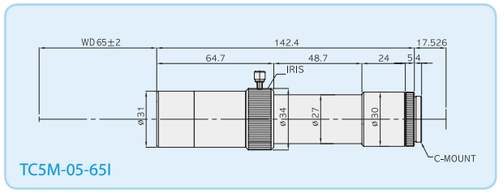
TC5M-40-65C



TC5M-40-65



TC5M-40-65IC



TC5M-05-65I

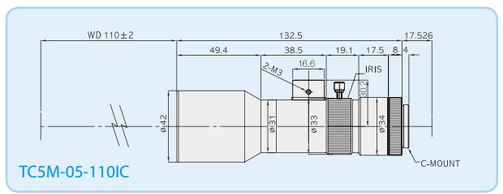
TC5M Series: 5 Megapixel Telecentric, Ultra High Resolution

Long WD (110mm)

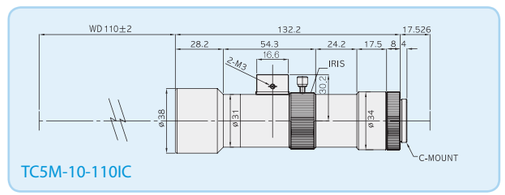
Lensagon No.	Mag.	WD	D.O.F	Res. (Obj.)	NA	CCD size (max.)	M	F No.	Telecentricity (< Degree)	Optical Distortion (%)
TC5M-05-110/C	0.5x	110 mm	861µm	7.2µm	0.0465	2/3″	C	5.38	0.02	0.02
TC5M-05-110I/IC										
TC5M-07-110/C	0.7x	110 mm	439µm	5.15µm	0.0651	2/3″	C	5.38	0.02	0.02
TC5M-07-110I/IC										
TC5M-10-110/C	1.0x	110 mm	260µm	4.36µm	0.077	2/3″	C	6.5	0.03	0.03
TC5M-10-110I/IC										
TC5M-20-110/C	2.0x	110 mm	220µm	3.8µm	0.09	2/3″	C	11	0.05	0.03

I= Manual Iris, C= Coaxial, IC= Both

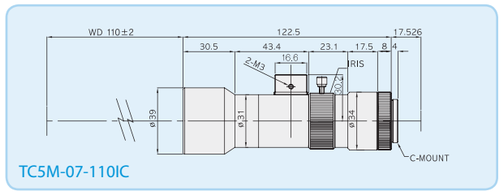
* DOF Calculation : Permissible circle of confusion 20µm



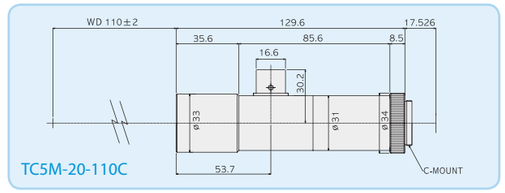
TC5M-05-110IC



TC5M-10-110IC



TC5M-07-110IC



TC5M-20-110C

5 MegaPixel

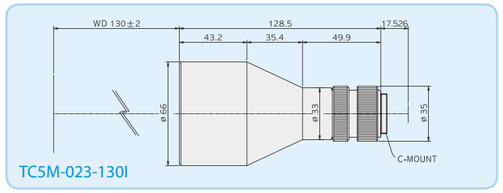
TC5M Series: 5 Megapixel Telecentric, Ultra High Resolution

Long WD (130mm)

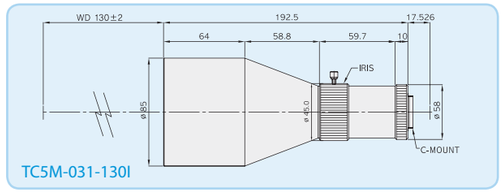
Lensagon No.	Mag.	WD	D.O.F	Res. (Obj.)	NA	CCD size (max.)	M	F No.	Telecentricity (< Degree)	Optical Distortion (%)
TC5M-023-130I	0.23x	130 mm	8.4 mm	16.2 µm	0.02	2/3″	C	5.56	0.04	0.08
TC5M-0315-130I	0.315x	130 mm	2.52 mm	13.3 µm	0.0252	2/3″	C	6.25	0.03	0.03
TC5M-0348-130I	0.348x	130 mm	2.06 mm	12.1 µm	0.0278	2/3″	C	6.25	0.03	0.04
TC5M-042-130I	0.42x	130 mm	1.02 mm	7.26 µm	0.0462	2/3″	C	4.5	0.03	0.03
TC5M-07-130I	0.7x	130 mm	449 µm	5.33µm	0.063	2/3″	C	5.5	0.03	0.05

I= Manual Iris, C= Coaxial, IC= Both

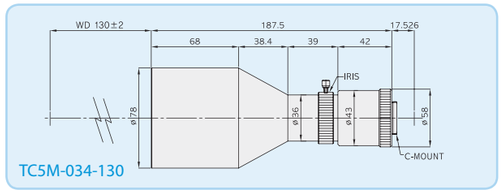
* DOF Calculation : Permissible circle of confusion 20µm



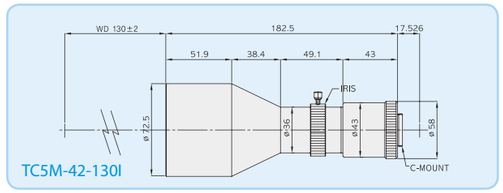
TC5M-023-130I



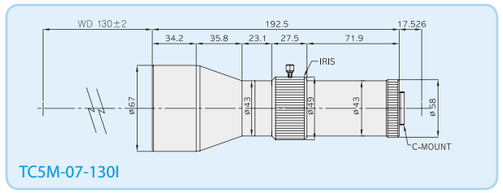
TC5M-031-130I



TC5M-034-130



TC5M-42-130I



TC5M-07-130I

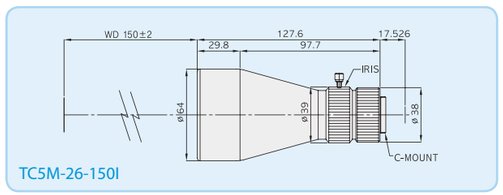
TC5M Series: 5 Megapixel Telecentric, Ultra High Resolution

Long WD (150mm)

Lensagon No.	Mag.	WD	D.O.F	Res. (Obj.)	NA	CCD size (max.)	M	F No.	Telecentricity (< Degree)	Optical Distortion (%)
TC5M-026-150I	0.26x	150 mm	3.1 mm	13.7 µm	0.0245	2/3"	C	11	0.03	0.08

I= Manual Iris, C= Coaxial, IC= Both

* DOF Calculation : Permissible circle of confusion 20µm



TC5M-26-150I

5 MegaPixel

TC12M Series: 12 Megapixel Telecentric, Ultra High Resolution

Long WD (170mm and 237mm)

For combination with the newest CCD cameras of up to 12 Megapixels!

12 MegaPixel

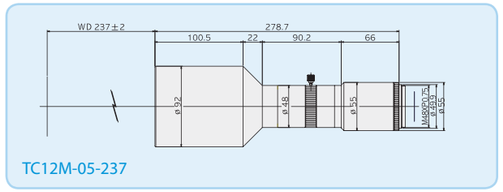
Features

- This telecentric lens can support up to 12M pixel CCD cameras
- No perspective error over the whole F.O.V.
- Manual Iris adapted for adjusting D.O.F.
- Good for SMT, PCB, LED inspection application.

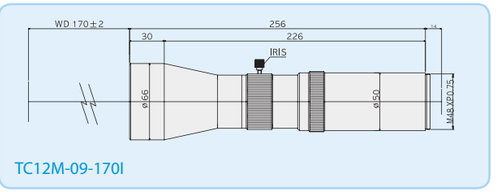
Lensagon No.	Mag.	WD	D.O.F	Res. (Obj.)	NA	CCD size (max.)	M	F No.	Telecentricity (< Degree)	Optical Distortion (%)
TC12M-05-237I	0.5x	237 mm	1.5 mm	4.2 µm	0.04	12M(6u)	C	6.25	0.03	0.08
TC12M-092-170I	0.92x	170 mm	506 µm	5.2 µm	0.064	12M(6u)	C	7.14	0.04	0.03

I= Manual Iris, C= Coaxial, IC= Both

* DOF Calculation : Permissible circle of confusion 20µm



TC12M-05-237



TC12M-09-170I

TCHR Series: High Resolution & Contrast Telecentric Lenses

Designed for mega-pixel CCD cameras
(4.65um/pixel)

Features

- High Resolution and contrast design in F.O.V.
- W.D. selection of 65mm and 110mm
- Supports up to 2/3" cell cameras
- Various magnifications with low-distortion design
- Uniform coaxial illumination over the whole F.O.V.
- Mount: **C-Mount**

Middle WD (65mm)

Lensagon No.	Mag.	WD	Res. (Obj.)	NA	F No.	D.O.F. (µm)	Telecentricity (< Degree)	Optical Distort. (%)	CCD size (max.)
TCHR-013-60	0.13x	60	34.60	0.097	6.70	31.7	0.030	0.080	1/2"
TCHR-05-65/C	0.5x	65	8.40	0.030	6.25	1.5 mm	0.020	0.170	2/3"
TCHR-08-65/C	0.8x	65	5.25	0.050	6.25	586	0.020	0.134	2/3"
TCHR-10-65/C	1.0x	65	4.80	0.050	7.14	428	0.022	0.160	2/3"
TCHR-15-65/C	1.5x	65	4.80	0.070	10.70	380	0.022	0.070	1/2"
TCHR-20-65/C	2.0x	65	4.50	0.074	13.40	268	0.050	0.030	2/3"
TCHR-24-65/C	2.4x	65	4.80	0.070	17.20	239	0.015	0.100	2/3"
TCHR-40-65/C	4.0x	65	3.05	0.110	18.18	90	0.050	0.030	2/3"
TCHR-60-65/C	6.0x	65	3.00	0.110	27.20	61	0.050	0.030	2/3"
TCHR-100-65/C	10.0x	65	2.20	0.150	33.30	27	0.010	0.140	1/2"
TCHR-120-65/C	12.0x	65	2.10	0.161	37.30	21	0.004	0.100	1/2"

Long WD (110mm)

Lensagon No.	Mag.	WD	Res. (Obj.)	NA	F No.	D.O.F. (µm)	Telecentricity (< Degree)	Optical Distort. (%)	CCD size (max.)
TCHR-05-110/C	0.5X	110	14.90	0.023	11.10	3.5 mm	0.020	0.200	2/3"
TCHR-08-110/C	0.8X	110	11.20	0.030	13.20	1.65 mm	0.017	0.150	2/3"
TCHR-10-110/C	1.0X	110	6.70	0.050	10.00	800	0.030	0.150	2/3"
TCHR-15-110/C	1.5X	110	5.60	0.060	12.50	444	0.020	0.060	1/2"
TCHR-20-110/C	2.0X	110	4.40	0.077	13.00	260	0.020	0.030	2/3"
TCHR-40-110/C	4.0X	110	3.72	0.090	22.20	111	0.050	0.030	2/3"
TCHR-60-110/C	6.0X	110	3.72	0.090	33.40	74	0.050	0.030	2/3"
TCHR-80-110/C	8.0X	110	3.72	0.090	44.40	56	0.050	0.190	1/2"

Long WD (130mm)

Lensagon No.	Mag.	WD	Res. (Obj.)	NA	F No.	D.O.F. (µm)	Telecentricity (< Degree)	Optical Distort. (%)	CCD size (max.)
TCHR-0165-130IC	0.165X	130	28.20	0.012	7.10	20.8 mm	0.040	0.050	1/2""
TCHR-023-130IC	0.23X	130	20.00	0.016	7.10	10.7 mm	0.010	0.130	2/3"
TCHR-03-130IC	0.3X	130	17.60	0.019	7.90	7.0 mm	0.040	0.080	2/3"

I= Manual Iris, C= Coaxial, IC= Both

* DOF Calculation : Permissible circle of confusion 20µm

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Telecentric Lenses

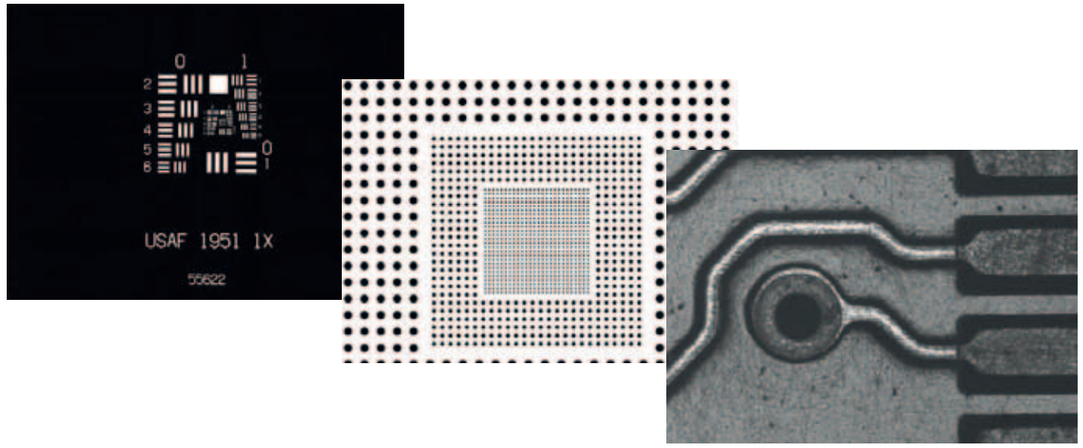
S-Mount
FA Lenses
Telecentric
Macro Lenses
Economy
Special
Distribution

TC4M Series: 4 Megapixel Telecentric Lenses

Features

- High telecentricity: no perspective error
- Telecentric lenses for large detectors 4M (15,2 x 15.2mm) and 1"
- Iris diaphragm for adjusting D.O.F
- Wide magnification range from 0.315X to 2.0X
- Good for semiconductor & SMT & PCB component measurement
- Mount: **F-Mount**

Lensagon No.	Mag.	WD	Res. (Obj.)	NA	F No.	D.O.F. (µm)	Telecentricity (< Degree)	Optical Distort. (%)	CCD size (max.)
TC4M0315-130I-HR	0.315X	130	13.30	0.025	6.25	5.0 mm	0.030	0.030	1.2"
TC4M0348-130I-HR	0.348X	130	12.10	0.028	6.25	3.1 mm	0.030	0.040	1.2"
TC4M042-130I-HR	0.42X	130	5.40	0.063	3.35	1.15 mm	0.030	0.030	1.2"
TC4M042-130I	0.42X	130	16.00	0.021	10.00	4.5 mm	0.023	0.100	1.2"
TC4M06-130I	0.6X	130	11.60	0.029	10.40	2.3 mm	0.023	0.100	1.2"
TC4M07-130I-HR	0.7X	130	5.10	0.066	5.30	865	0.300	0.050	1.2"
TC4M20-50/C-HR	2.0X	50	3.00	0.112	8.93	135	0.300	0.040	1.2"
TC4M06-310I	0.6X	310	7.00	0.048	6.25	1.4 mm	0.300	0.080	1.2"



Subject to change – errors excepted.

TCST Series: Standard Telecentric Lenses

Features

- Fixed magnification lens
- Low optical distortion & good telecentricity
- High resolution and high contrast design
- Various choices of W.D. & magnification
- All coaxial types have even illumination
- Mount: **C-Mount**

Short WD (40mm)

Lensagon No.	Mag.	WD	Res. (Obj.)	NA	F No.	D.O.F. (µm)	Telecentricity (< Degree)	Optical Distort. (%)	CCD size (max.)
TCST-10-40/C	1.0X	40	6.21	0.054	9.26	740	0.030	0.080	1/2″
TCST-15-40/C	1.5X	40	5.32	0.063	11.90	423	0.030	0.250	1/2″
TCST-20-40/C	2.0X	40	4.80	0.070	14.28	286	0.030	0.003	1/2″
TCST-30-40/C	3.0X	40	4.80	0.070	21.50	191	0.020	0.260	1/2″
TCST-40-40/C	4.0X	40	4.80	0.070	28.60	143	0.020	0.300	1/2″
TCST-50-40/C	5.0X	40	4.20	0.070	31.25	100	0.020	0.200	1/2″
TCST-60-40/C	6.0X	40	4.20	0.080	37.40	83	0.020	0.140	1/2″
TCST-80-40/C	8.0X	40	4.20	0.080	50.00	63	0.010	0.020	1/2″

Middle WD (65mm)

Lensagon No.	Mag.	WD	Res. (Obj.)	NA	F No.	D.O.F. (µm)	Telecentricity (< Degree)	Optical Distort. (%)	CCD size (max.)
TCST-08-65/C	0.8X	65	12.40	0.027	14.80	1.85 mm	0.050	0.050	1/2″
TCST-10-65/C	1.0X	65	12.40	0.027	18.50	1.45 mm	0.050	0.030	1/2″
TCST-15-65/C	1.5X	65	7.00	0.048	15.60	380	0.050	0.060	1/2″
TCST-20-65/C	2.0X	65	5.20	0.065	15.40	380	0.020	0.030	1/2″
TCST-30-65/C	3.0X	65	5.60	0.060	25.00	222	0.020	0.160	1/2″
TCST-40-65/C	4.0X	65	4.40	0.076	26.30	132	0.040	0.030	1/2″
TCST-50-65/C	5.0X	65	4.40	0.076	32.90	105	0.040	0.050	1/2″
TCST-60-65/C	6.0X	65	4.40	0.076	39.50	88	0.040	0.060	1/2″
TCST-80-65/C	8.0X	65	4.40	0.076	52.60	66	0.050	0.050	1/2″

Middle WD (110mm)

Lensagon No.	Mag.	WD	Res. (Obj.)	NA	F No.	D.O.F. (µm)	Telecentricity (< Degree)	Optical Distort. (%)	CCD size (max.)
TCST-08-110/C	0.8X	110	12.40	0.027	14.80	1.85 mm	0.050	0.050	1/2″
TCST-10-113/C	1.0X	113	14.00	0.024	20.80	1.66 mm	0.020	0.023	1/2″
TCST-20-110/C	2.0X	110	7.40	0.045	22.20	444	0.020	0.020	1/2″
TCST-24-110/C	2.4X	110	7.40	0.045	26.70	370	0.020	0.070	1/2″
TCST-30-110/C	3.0X	110	6.10	0.055	27.30	243	0.010	0.140	1/2″
TCST-40-110/C	4.0X	110	5.60	0.060	33.45	167	0.010	0.160	1/2″
TCST-50-110/C	5.0X	110	5.60	0.060	41.77	134	0.010	0.140	1/2″
TCST-60-110/C	6.0X	110	5.60	0.060	50.00	111	0.010	0.100	1/2″
TCST-80-110/C	8.0X	110	5.60	0.060	66.70	85	0.015	0.250	1/2″

I= Manual Iris, C= Coaxial, IC= Both

* DOF Calculation : Permissible circle of confusion 20µm

Long WD (150mm)

Lensagon No.	Mag.	WD	Res. (Obj.)	NA	F No.	D.O.F. (µm)	Telecentricity (< Degree)	Optical Distort. (%)	CCD size (max.)
TCST-01-150I	0.1X	150	40.40	0.008	6.00	36 mm	0.040	0.050	1/2″
TCST-08-173/C	0.8X	173	11.20	0.030	13.30	1.66 mm	0.040	0.070	1/2″
TCST-10-156/C	1.0X	156	8.80	0.038	13.10	1.0 mm	0.040	0.070	1/2″
TCST-12-173/C	1.2X	173	11.20	0.030	20.00	1.11 mm	0.040	0.130	1/2″
TCST-15-156/C	1.5X	156	8.83	0.038	19.70	700	0.040	0.160	1/2″
TCST-16-173/C	1.6X	173	11.20	0.030	26.70	834	0.040	0.180	1/2″
TCST-20-156/C	2.0X	156	8.83	0.038	26.30	526	0.040	0.190	1/2″

Long WD (220mm)

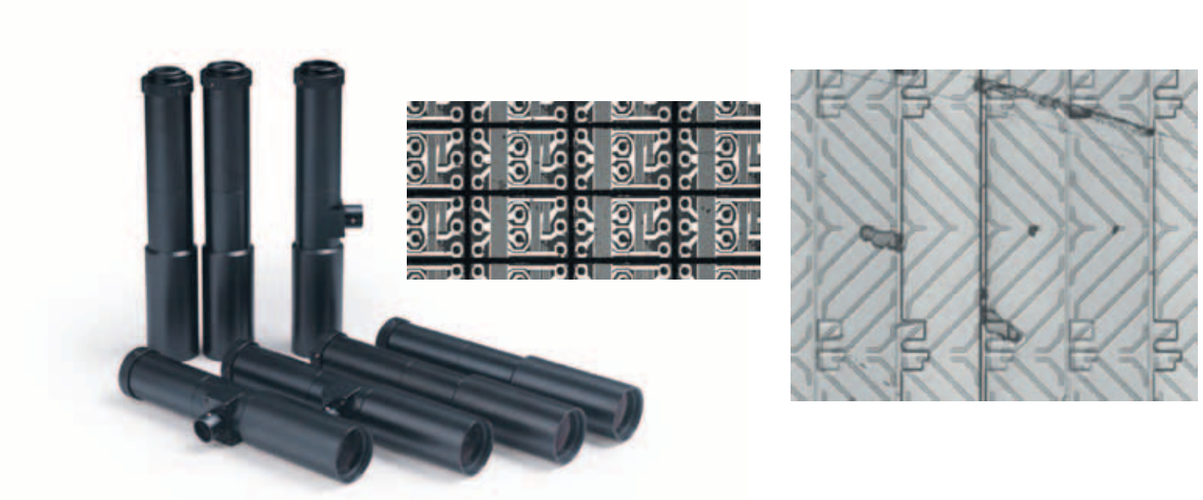
Lensagon No.	Mag.	WD	Res. (Obj.)	NA	F No.	D.O.F. (µm)	Telecentricity (< Degree)	Optical Distort. (%)	CCD size (max.)
TCST-075-220/C	0.75X	220	8.90	0.038	10.00	1.4 mm	0.030	0.080	1/2″
TCST-10-220/C	1.0X	220	7.40	0.045	11.00	880	0.030	0.010	2/3″
TCST-20-220/C	2.0X	220	4.20	0.080	12.50	250	0.030	0.020	2/3″
TCST-30-220/C	3.0X	220	4.20	0.080	18.70	166	0.020	0.100	1/2″

Long WD (300mm)

Lensagon No.	Mag.	WD	Res. (Obj.)	NA	F No.	D.O.F. (µm)	Telecentricity (< Degree)	Optical Distort. (%)	CCD size (max.)
TCST-10-300/C	1.0X	300	9.60	0.035	14.20	1100	0.020	0.030	1/2″
TCST-15-300/C	2.0X	300	9.60	0.035	21.40	762	0.020	0.130	1/2″
TCST-20-300/C	2.0X	300	9.60	0.035	28.50	571	0.010	0.170	1/2″

I= Manual Iris, C= Coaxial, IC= Both

* DOF Calculation : Permissible circle of confusion 20µm



Standard Bi-Telecentric Lenses

Features

- Higher accuracy than object-side telecentric lenses
- High resolution and high contrast design
- Unique compact shape
- Rich selection to choose from
- All models are near to distortion-free
- Excellent depth of field
- The image form and dimension(measurements) remain unchanged even if the object face or image face slightly moves or the focus runs out
- All coaxial episcopic types have even illumination
- Manual iris

Standard Bi-Telecentric Lenses

Lensagon No.	Mag.	WD	D.O.F	Res.	NA	CCD size	M	F.O.V on 2/3″ Cam	F.O.V on 1/2″ Cam	F.O.V on 1/3″ Cam
TS-0145-160	0.145x	158.38mm	16mm	40μm	0.025	1/2″	C	-	33x44mm	24.8x33.1mm
TS-0145-160C	0.145x	158.38mm	16mm	40μm	0.025	1/2″	C	-	33x44mm	24.8x33.1mm
TS-02-160	0.2x	158.38mm	11mm	30μm	0.025	2/3″	C	33x44mm	24x32mm	18x24mm
TS-02-160C	0.2x	158.38mm	11mm	30μm	0.025	2/3″	C	33x44mm	24x32mm	18x24mm
TS-0218-100	0.218x	105mm	7mm	27μm	0.0375	1/2″	C	-	22x29.3mm	16.5x22mm
TS-0218-100C	0.218x	105mm	7mm	27μm	0.0375	1/2″	C	-	22x29.3mm	16.5x22mm
TS-0291-75	0.291x	78.7mm	4mm	20μm	0.05	1/2″	C	-	16.5x22mm	12.4x16.5mm
TS-0291-75C	0.291x	78.7mm	4mm	20μm	0.05	1/2″	C	-	16.5x22mm	12.4x16.5mm
TS-03-100	0.3x	105mm	5mm	20μm	0.038	2/3″	C	22x29.3mm	16x21.3mm	12x16mm
TS-03-100C	0.3x	105mm	5mm	20μm	0.038	2/3″	C	22x29.3mm	16x21.3mm	12x16mm
TS-0364-60	0.364x	64.1mm	2.5mm	16μm	0.0625	1/2″	C	-	13.2x17.6mm	9.9x13.2mm
TS-0364-60C	0.364x	64.1mm	2.5mm	16μm	0.0625	1/2″	C	-	13.2x17.6mm	9.9x13.2mm
TS-04-80	0.4x	79mm	2.7mm	15μm	0.05	2/3″	C	16.5x22mm	12x16mm	9x12mm
TS-04-80C	0.4x	79mm	2.7mm	15μm	0.05	2/3″	C	16.5x22mm	12x16mm	9x12mm
TS-05-60	0.5x	62mm	1.7mm	12μm	0.063	2/3″	C	13.2x17.6mm	9.6x12.8mm	7.2x9.6mm
TS-05-60C	0.5x	62mm	1.7mm	12μm	0.063	2/3″	C	13.2x17.6mm	9.6x12.8mm	7.2x9.6mm
TS-07-70	0.72x	71mm	1.2mm	13μm	0.025	1/2″	C	-	6.6x8.8mm	5.0x6.6mm
TS-07-70C	0.72x	71mm	1.2mm	13μm	0.025	1/2″	C	-	6.6x8.8mm	5.0x6.6mm
TS-10-70	1.0x	71mm	1.2mm	13μm	0.038	2/3″	C	6.6x8.8mm	4.8x6.4mm	3.6x4.8mm
TS-10-70C	1.0x	71mm	1.2mm	13μm	0.038	2/3″	C	6.6x8.8mm	4.8x6.4mm	3.6x4.8mm
TS-20-65	2x	65mm	0.5mm	10μm	0.038	2/3″	C	3.3x4.4mm	2.4x3.2mm	0.9x1.2mm
TS-20-65C	2x	65mm	0.5mm	10μm	0.038	2/3″	C	3.3x4.4mm	2.4x3.2mm	0.9x1.2mm
TS-40-65	4x	68mm	0.2mm	6μm	0.063	2/3″	C	1.65x2.2mm	1.2x1.6mm	0.9x1.2mm
TS-40-65C	4x	68mm	0.2mm	6μm	0.063	2/3″	C	1.65x2.2mm	1.2x1.6mm	0.9x1.2mm
TS-60-70	6x	70mm	0.2mm	6μm	0.063	2/3″	C	1.1x1.47mm	0.8x1.07mm	0.6x0.8mm
TS-60-70C	6x	70mm	0.2mm	6μm	0.063	2/3″	C	1.1x1.47mm	0.8x1.07mm	0.6x0.8mm

Other Working Distance as Option

Lensagon No.	Mag.	Standard WD	Modifiable WD
TS-02-160/C	0.2x	158.38mm	30~330mm
TS-0145-160/C	0.145x	158.38mm	20~420mm
TS-03-100/C	0.3x	105mm	30~180mm
TS-05-60/C	0.5x	105mm	20~220mm

Lensagon No.	Mag.	Standard WD	Modifiable WD
TS-04-80/C	0.4x	78.7mm	30~120mm
TS-291-75/C	0.291x	78.7mm	20~140mm
TS-05-60/C	0.5x	62.14mm	30~90mm
TS-0364-60/C	0.364x	62.14mm	20~103mm

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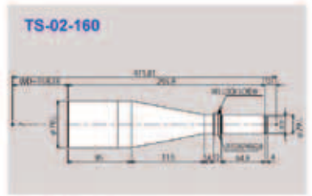

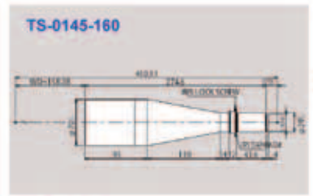

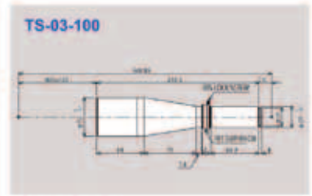

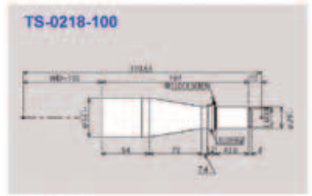

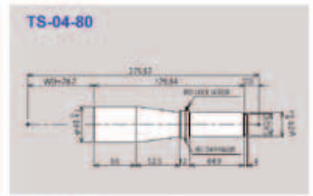

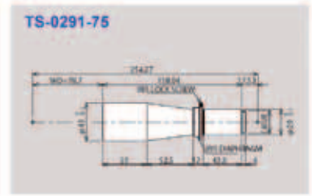

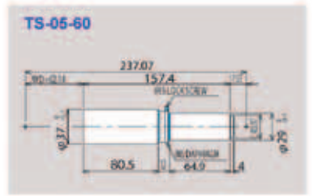

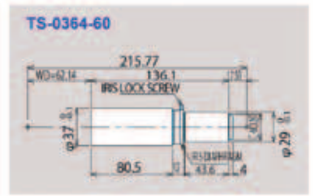

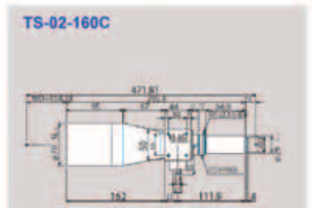

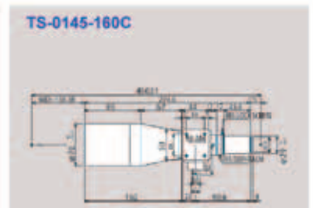

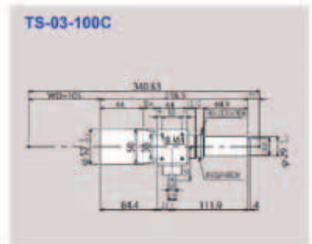

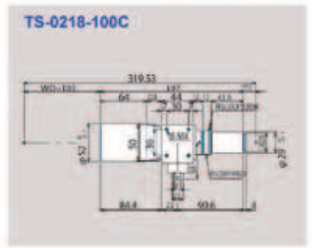

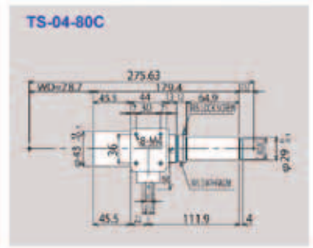

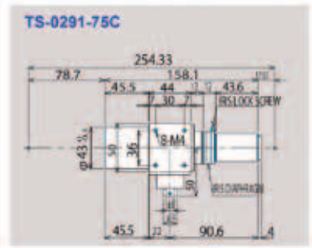

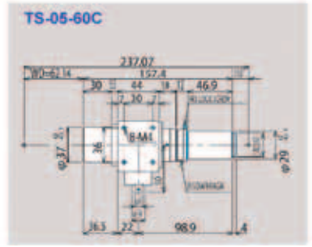

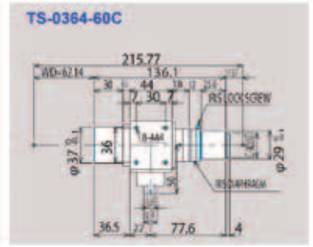

S-Mount
FA Lenses
Telecentric
Macro Lenses
Economy
Special
Distribution

Megapixel Bi-Telecentric Lenses

Features

- Compatible with cameras over 1 Megapixel
- High accuracy and high performance.
- All models are close to distortion-free
- Excellent depth of field
- Rich selection
- Unique compact shape
- Manual iris
- All coaxial episcopic types have even illumination

Megapixel Bi-Telecentric Lenses

Lensagon No.	Mag.	WD	D.O.F	Res.	NA	CCD size	M	F.O.V on 2/3" Cam	F.O.V on 1/2" Cam	F.O.V on 1/3" Cam
TM-01-340	0.1x	342.1mm	33.5mm	61µm	0.0055	2/3"	C	66x88mm	48x64mm	36x48mm
TM-01-340C	0.1x	342.1mm	33.5mm	61µm	0.0055	2/3"	C	66x88mm	48x64mm	36x48mm
TM-02-165	0.2x	167mm	8.4mm	31µm	0.011	2/3"	C	33x44mm	24x32mm	18x24mm
TM-02-165C	0.2x	167mm	8.4mm	31µm	0.011	2/3"	C	33x44mm	24x32mm	18x24mm
TM-03-100	0.3x	108.2mm	3.7mm	20µm	0.0165	2/3"	C	22x29.3mm	16x21.3mm	12x16mm
TM-03-100C	0.3x	108.2mm	3.7mm	20µm	0.0165	2/3"	C	22x29.3mm	16x21.3mm	12x16mm
TM-04-75	0.4x	78.5mm	2.1mm	15µm	0.022	2/3"	C	16.5x22mm	12x16mm	9x12mm
TM-04-75C	0.4x	78.5mm	2.1mm	15µm	0.022	2/3"	C	16.5x22mm	12x16mm	9x12mm
TM-05-60	0.5x	60.7mm	1.34mm	12µm	0.0275	2/3"	C	13.2x17.6mm	9.6x12.8mm	7.2x9.6mm
TM-05-60C	0.5x	60.7mm	1.34mm	12µm	0.0275	2/3"	C	13.2x17.6mm	9.6x12.8mm	7.2x9.6mm
TM-0073-340	0.073x	342.1mm	32.3mm	61µm	0.0055	1/2"	C	-	66x88mm	49x66mm
TM-0073-340C	0.073x	342.1mm	32.3mm	61µm	0.0055	1/2"	C	-	66x88mm	49x66mm
TM-0145-165	0.145x	167mm	8.1mm	31µm	0.011	1/2"	C	-	33x44mm	24.8x33.1mm
TM-0145-165C	0.145x	167mm	8.1mm	31µm	0.011	1/2"	C	-	33x44mm	24.8x33.1mm
TM-0218-100	0.218x	108.2mm	3.6mm	20µm	0.0165	1/2"	C	-	22x29.3mm	16.5x22mm
TM-0218-100C	0.218x	108.2mm	3.6mm	20µm	0.0165	1/2"	C	-	22x29.3mm	16.5x22mm
TM-0291-75	0.291x	78.5mm	2.0mm	15µm	0.022	1/2"	C	-	16.5x22mm	12.4x16.5mm
TM-0291-75C	0.291x	78.5mm	2.0mm	15µm	0.022	1/2"	C	-	16.5x22mm	12.4x16.5mm
TM-0364-60	0.364x	60.7mm	1.29mm	12µm	0.0275	1/2"	C	-	13.2x17.6mm	9.9x13.2mm
TM-0364-60C	0.364x	60.7mm	1.29mm	12µm	0.0275	1/2"	C	-	13.2x17.6mm	9.9x13.2mm
TM-00575-340	0.0575x	342.1mm	37.3mm	70µm	0.0048	1/3"	C	-	-	62.6x83.4mm
TM-00575-340C	0.0575x	342.1mm	37.3mm	70µm	0.0048	1/3"	C	-	-	62.6x83.4mm
TM-0115-165	0.115x	167.0mm	9.32mm	35µm	0.0096	1/3"	C	-	-	31.3x41.7mm
TM-0115-165C	0.115x	167.0mm	9.32mm	35µm	0.0096	1/3"	C	-	-	31.3x41.7mm
TM-01725-100	0.1725x	108.2mm	4.15mm	23.3µm	0.0144	1/3"	C	-	-	20.8x27.8mm
TM-01725-100C	0.1725x	108.2mm	4.15mm	23.3µm	0.0144	1/3"	C	-	-	20.8x27.8mm
TM-023-75	0.23x	78.5mm	2.33mm	17.5µm	0.0192	1/3"	C	-	-	15.6x20.8mm
TM-023-75C	0.23x	78.5mm	2.33mm	17.5µm	0.0192	1/3"	C	-	-	15.6x20.8mm
TM-02875-60	0.2875x	60.7mm	1.49mm	14µm	0.0240	1/3"	C	-	-	12.5x16.6mm
TM-02875-60C	0.2875x	60.7mm	1.49mm	14µm	0.0240	1/3"	C	-	-	12.5x16.6mm

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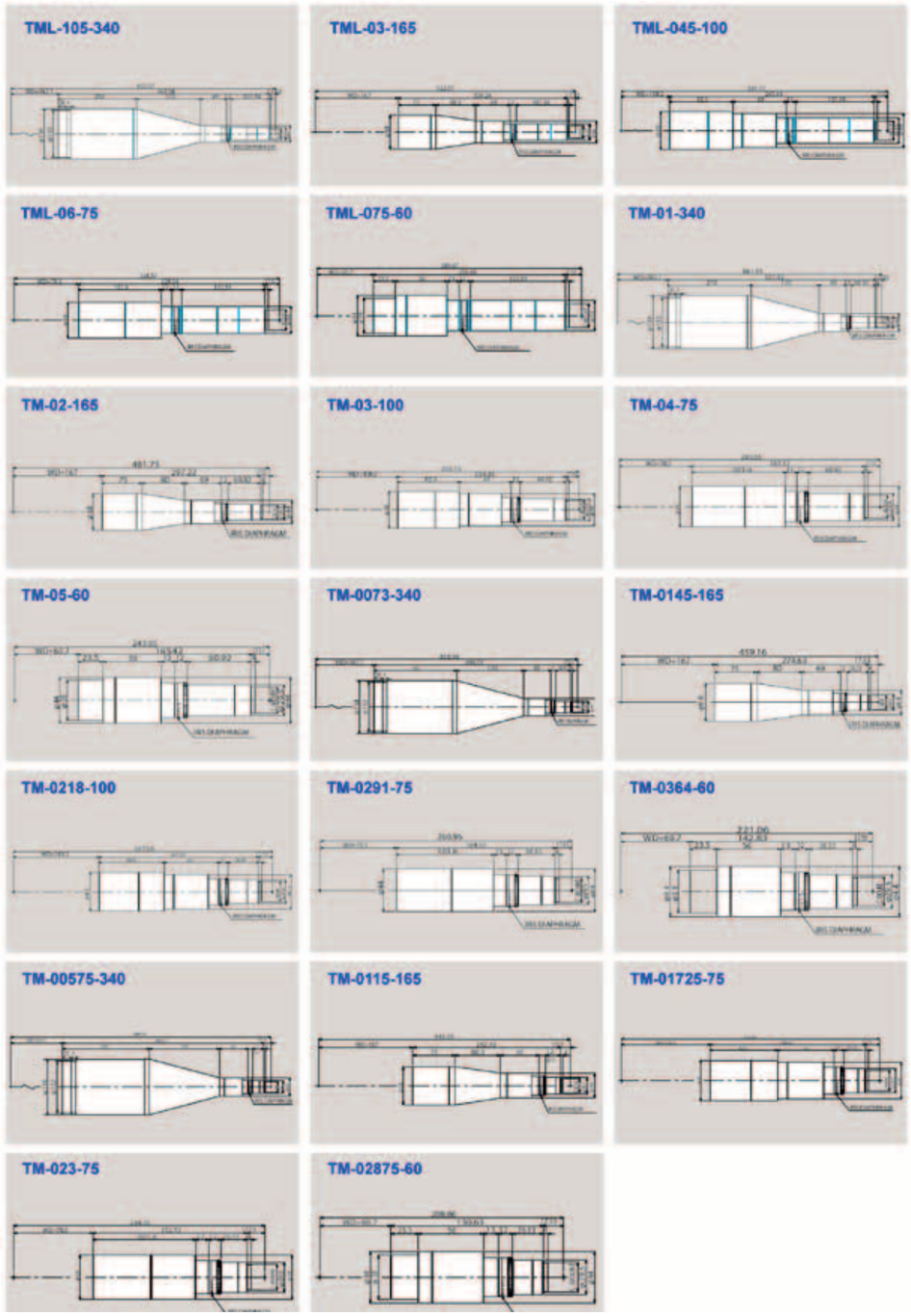
Telecentric Lenses



Megapixel Bi-Telecentric Lenses for 1.1″ sensors

Features

- Telecentric on object and image sides
- 5 Types / 10 models from 0.15x to 0.75x
- Compatible with 1.1inch(12x12x17mm)
- Compatible with cameras over 1 Megapixel
- Optical distortion close to 0% (distortion-free)
- Excellent depth of field with variable manual iris
- Illumination for coaxial episcopic types
- All coaxial episcopic types can be adapted to be light polarising (optional)

Megapixel Bi-Telecentric Lenses for 1.1″ sensors

Lensagon No.	Mag.	WD	Depth of Field	Resolution	NA	CCD size	Mount
TML-015-340	0.15x	342mm	20mm	54µm	0.0063	1.1″	C
TML-015-340C	0.15x	342mm	20mm	54µm	0.0063	1.1″	C
TML-03-165	0.3x	167mm	5mm	27µm	0.0125	1.1″	C
TML-03-165C	0.3x	167mm	5mm	27µm	0.0125	1.1″	C
TML-045-100	0.45x	108.2mm	2.2mm	18µm	0.0188	1.1″	C
TML-045-100C	0.45x	108.2mm	2.2mm	18µm	0.0188	1.1″	C
TML-06-75	0.6x	78.5mm	1.3mm	13.5µm	0.025	1.1″	C
TML-06-75C	0.6x	78.5mm	1.3mm	13.5µm	0.025	1.1″	C
TML-075-60	0.75x	60.7mm	0.8mm	11µm	0.0313	1.1″	C
TML-075-60C	0.75x	60.7mm	0.8mm	11µm	0.0313	1.1″	C

Field Of View

FOV (H x V)		Lens magnification				
		0.15x	0.3x	0.45x	0.6x	0.75x
CCD size	1″	63.5 x 84.6mm	31.7 x 42.3mm	21.1 x 28.2mm	15.8 x 21.1mm	12.7 x 16.9mm
	2/3″	44 x 58.66mm	22 x 29.33mm	14.7 x 19.5mm	11 x 14.6mm	8.8 x 11.6mm
	1/2″	32 x 42.6mm	16 x 21.3mm	10.6 x 14.2mm	8 x 10.6mm	6.4 x 8.5mm
	1/3″	21.3 x 32mm	12 x 16mm	8 x 10.6mm	6 x 8mm	4.8 x 6.4mm
	1/4″	18 x 21.3mm	9 x 12mm	6 x 8mm	4.5 x 6mm	3.6 x 4.8mm

Telecentricity (parallelism of principal ray to optical axis)

Lensagon No.	Mag.	2/3″	1/2″	1/3″
TML-015-340/C	0.15x	-0.00123	-0.00007	+0.00025
TML-03-165/C	0.3x	-0.00123	-0.00007	+0.00025
TML-045-100/C	0.45x	-0.00120	-0.00007	+0.00024
TML-06-75/C	0.6x	-0.00118	-0.00006	+0.00024
TML-075-60/C	0.75x	-0.00117	-0.00006	+0.00024

Other Working Distance as Option

Lensagon No.	Mag.	Standard WD	Modifiable
TML-015-340/C	0.15x	342.1mm	5~1300mm
TML-03-165/C	0.3x	160.0mm	5~410mm
TML-045-100/C	0.45x	108.2mm	5~220mm
TML-06-75/C	0.6x	78.5mm	5~140mm
TML-075-60/C	0.75x	60.7mm	5~100mm

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Telecentric Lenses

Megapixel Object-side Telecentric Lenses up to 1.1″sensors

Features

- Compatible with over 1 megapixel cameras
- Image size up to 1.1″(12x12x17mm)
- Uniform light with coaxial episcopic illumination (C types)
- 1.0x polarised light type (P type) as standard selection

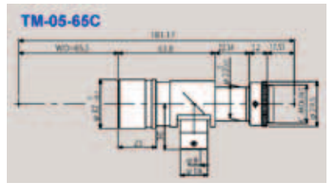
Megapixel Object-side Telecentric Lenses up to 1.1″ sensors

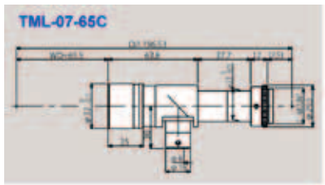
(Types with and without coaxial illumination are available)

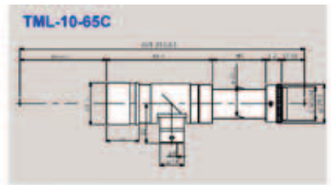
Lensagon No.	TML-05-65/C	TML-07-65/C	TML-10-65/C	TML-10-65P	TML-15-65/C	TML-20-65/C	TML-40-65/C
Mag.	0.5x	0.7x	1.0x	1.0x	1.5x	2.0x	4.0x
WD	65.5mm	65.5mm	65.5mm	63mm	65mm	65mm	65mm
D.O.F	0.69mm	0.35mm	0.28mm		0.11mm	0.095mm	0.044mm
Optical Resolution	9.0µm	6.4µm	5.4µm		3.4µm	3.4µm	2.8µm
NA	0.038	0.053	0.063		0.1	0.1	0.12
CCD size	1/1.8″	2/3″	1.1″		1.1″	1.1″	1.1″
Mount	C	C	C		C	C	C
F.O.V on 1.1″	-	-	12x12mm		8x8mm	6x6mm	3x3mm
F.O.V on 1″	-	-	9.525x12.7mm		6.35x8.5mm	4.8x6.35mm	2.4x3.2mm
F.O.V on 2/3″	-	9.4x12.6mm	6.6x8.8mm		4.4x5.9mm	3.3x4.4mm	1.65x2.2mm
F.O.V on 1/1.8″	10.7x14.3mm	7.6x10.2mm	5.35x7.14mm		3.37x4.76mm	2.675x3.57mm	1.34x1.8mm
F.O.V on 1/2″	9.6x12.8mm	6.86x11.4mm	4.8x6.4mm		3.2x4.3mm	2.4x3.2mm	1.2x1.6mm
F.O.V on 1/3″	7.2x9.6mm	5.1x6.86mm	3.6x4.8mm		2.4x3.2mm	1.8x2.4mm	0.9x1.2mm
Polarised Light	Optional	Optional	x	o	Optional	x	x

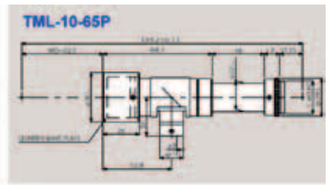
Megapixel Bi-Telecentic Lens for 1.1″ sensors

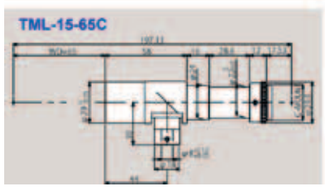
Lensagon No.	Object-side resolution	Image-side resolution
TML-05-65/C	9.0µm	4.5µm
TML-07-65/C	6.4µm	4.48µm
TML-10-65/C/P	5.4µm	5.4µm
TML-15-65/C	3.4µm	5.1µm
TML-20-65/C	3.4µm	6.8µm
TML-40-65/C	2.8µm	11.2µm

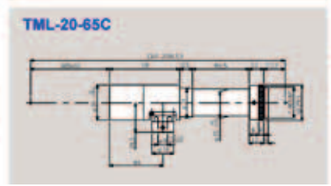


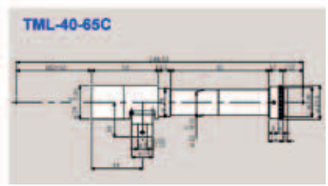












Megapixel Bi-Telecentric Lenses for F-mount cameras

Bi-Telecentric lenses
- 5 Types / 10 models from 0.2x to 1.0x
- Optical distortion is nearly 0%
- Excellent depth of view
- Manual iris

Object side Telecentric lenses
- 2 Types available for 1.0x and 2.0x

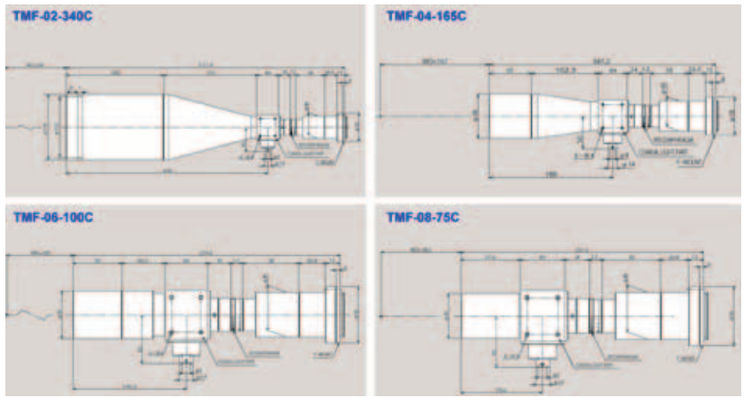
Common Features
- Uniform light with coaxial episcopic types (C types)
- Compatible with 15.2x15.2mm image size
- F-mount

Megapixel Bi-Telecentric Lenses for F-mount cameras

Lensagon No.	Mag.	WD	Depth of Field	Resolution	NA	F.O.V	Mount
TML-02-340	0.2x	342mm	18.9mm	54µm	0.0063	76x76mm	F
TML-02-340C	0.2x	342mm	18.9mm	54µm	0.0063	76x76mm	F
TMF-04-165	0.4x	167mm	4.7mm	27µm	0.0125	38x38mm	F
TMF-04-165C	0.4x	167mm	4.7mm	27µm	0.0125	38x38mm	F
TMF-06-100	0.6x	108mm	2.1mm	18µm	0.01875	25.3x25.3mm	F
TMF-06-100C	0.6x	108mm	2.1mm	18µm	0.01875	25.3x25.3mm	F
TMF-08-75	0.8x	78.5mm	1.18mm	13.4µm	0.025	19x19mm	F
TMF-08-75C	0.8x	78.5mm	1.18mm	13.4µm	0.025	19x19mm	F
TMF-10-60	1.0x	60.7mm	0.76mm	10.7µm	0.03125	15.2x15.2mm	F
TMF-10-60C	1.0x	60.7mm	0.76mm	10.7µm	0.03125	15.2x15.2mm	F

Megapixel Object-side Telecentric Lenses for F-mount cameras

Lensagon No.	Mag.	WD	Depth of Field	Resolution	NA	F.O.V	Mount
TMF-10-65	1x	65mm	0.28mm	5.4µm	0.0063	76x76mm	F
TMF-20-65	2x	65mm	0.095mm	3.4µm	0.1	76x76mm	F



Telecentric Lenses

Short WD (40mm), Middle WD (65mm~75mm)

Features
- High quality, cost-effective solution
- Low optical distortion design
- Illumination for coaxial episcopic types (C types)
- C-Mount

Short (40mm)

Lensagon No.	Mag.	WD	D.O.F	Res.	NA	CCD size		F.O.V on 2/3" Cam	F.O.V on 1/2" Cam	F.O.V on 1/3" Cam
TC-10-40	1.0x	40mm	1.2mm	5µm	0.025	1/2"	C	-	4.8x6.4mm	3.6x4.8mm
TC-10-40C	1.0x	40mm	1.2mm	5µm	0.025	1/2"	C	-	4.8x6.4mm	3.6x4.8mm
TC-20-40	2.0x	40mm	0.3mm	4.8µm	0.05	1/2"	C	-	2.4x3.2mm	1.8x.24mm
TC-20-40C	2.0x	40mm	0.3mm	4.8µm	0.05	1/2"	C	-	2.4x3.2mm	1.8x.24mm
TC-40-40	4.0x	39.5mm	0.15mm	4.8µm	0.07	1/2"	C	-	1.2x1.6mm	0.9x1.2mm
TC-40-40C	4.0x	39.5mm	0.15mm	4.8µm	0.07	1/2"	C	-	1.2x1.6mm	0.9x1.2mm

Middle WD (65mm)

Lensagon No.	Mag.	WD	D.O.F.	Res.	NA	CCD size		F.O.V on 2/3" Cam	F.O.V on 1/2" Cam	F.O.V on 1/3" Cam
TC-08-65	0.8x	65mm	1.1mm	13µm	0.025	1/2"	C	-	6x8mm	4.5x6mm
TC-08-65C	0.8x	65mm	1.1mm	13µm	0.025	1/2"	C	-	6x8mm	4.5x6mm
TC-10-65	1.0x	65mm	1.2mm	13µm	0.025	2/3"	C	6.6X8.8mm	4.8x6.4mm	3.6x4.8mm
TC-10-65C	1.0x	65mm	1.2mm	13µm	0.025	2/3"	C	6.6X8.8mm	4.8x6.4mm	3.6x4.8mm
TC-20-65	2.0x	65mm	0.27mm	6µm	0.056	1/2"	C	-	2.4x3.2mm	1.8x.24mm
TC-20-65C	2.0x	65mm	0.27mm	6µm	0.056	1/2"	C	-	2.4x3.2mm	1.8x.24mm
TC-40-65	4.0x	65mm	0.12mm	4.7µm	0.072	1/2"	C	-	1.2x1.6mm	0.9x1.2mm
TC-40-65C	4.0x	65mm	0.12mm	4.7µm	0.072	1/2"	C	-	1.2x1.6mm	0.9x1.2mm
TC-60-65	6.0x	65mm	0.099mm	4.7µm	0.072	1/2"	C	-	0.8x1.07mm	0.6x0.8mm
TC-60-65C	6.0x	65mm	0.099mm	4.7µm	0.072	1/2"	C	-	0.8x1.07mm	0.6x0.8mm
TC-80-65	8.0x	64.7mm	0.087mm	4.7µm	0.072	1/2"	C	-	0.6x0.8mm	0.45x0.6mm
TC-80-65C	8.0x	64.7mm	0.087mm	4.7µm	0.072	1/2"	C	-	0.6x0.8mm	0.45x0.6mm

Middle WD (75mm)

Lensagon No.	Mag.	WD	D.O.F.	Res.	NA	CCD size		F.O.V on 2/3" Cam	F.O.V on 1/2" Cam	F.O.V on 1/3" Cam
TC-047-75	0.47x	78.4mm	1.2mm	15µm	0.025	1/2"	C	-	10.2x13.6mm	7.65x10.2mm
TC-047-75C	0.47x	78.4mm	1.2mm	15µm	0.025	1/2"	C	-	10.2x13.6mm	7.65x10.2mm
TC-05-70	0.5x	71mm	1.2mm	15µm	0.025	1/2"	C	-	9.6x12.8mm	7.2x9.6mm
TC-05-70C	0.5x	71mm	1.2mm	15µm	0.025	1/2"	C	-	9.6x12.8mm	7.2x9.6mm
TC-055-70	0.55x	71mm	1.2mm	13µm	0.025	1/3"	C	-	-	6.5x8.7mm
TC-055-70C	0.55x	71mm	1.2mm	13µm	0.025	1/3"	C	-	-	6.5x8.7mm
TC-072-70	0.72x	71mm	1.2mm	13µm	0.025	1/2"	C	-	6.6x8.8mm	5.0x6.6mm
TC-072-70C	0.72x	71mm	1.2mm	13µm	0.025	1/2"	C	-	6.6x8.8mm	5.0x6.6mm
TC-10-70	1.0x	71mm	1.2mm	13µm	0.025	2/3"	C	6.6x8.8mm	4.8x6.4mm	3.6x4.8mm
TC-10-70C	1.0x	71mm	1.2mm	13µm	0.025	2/3"	C	6.6x8.8mm	4.8x6.4mm	3.6x4.8mm
TC-20-70	2.0x	71mm	0.5mm	10µm	0.038	2/3"	C	3.3x4.4mm	2.4x3.2mm	1.8x2.4mm
TC-20-70C	2.0x	71mm	0.5mm	10µm	0.038	2/3"	C	3.3x4.4mm	2.4x3.2mm	1.8x2.4mm
TC-40-70	4.0x	71mm	0.2mm	6µm	0.063	2/3"	C	1.65x2.2mm	1.2x1.6mm	0.9x1.2mm
TC-40-70C	4.0x	71mm	0.2mm	6µm	0.063	2/3"	C	1.65x2.2mm	1.2x1.6mm	0.9x1.2mm
TC-60-70	6.0x	71mm	0.2mm	6µm	0.063	2/3"	C	1.1x1.47mm	0.8x1.07mm	0.6x0.8mm
TC-60-70C	6.0x	71mm	0.2mm	6µm	0.063	2/3"	C	1.1x1.47mm	0.8x1.07mm	0.6x0.8mm

Telecentric Lenses

Long WD (110/156mm),SuperLong WD (218/290mm)

Features

- High quality, cost effective solution
- High workability with long working distance
- Low optical distortion design
- Illumination for coaxial episcopic types (C types)

Long WD (110mm)

Lensagon No.	Mag.	WD	D.O.F.	Res.	NA	CCD		F.O.V on 2/3″	F.O.V on 1/2″	F.O.V on 1/3″
TC-05-110	0.5x	110mm	2.4mm	16µm	0.022	2/3″	C	-	6x8mm	4.5x6mm
TC-05-110C	0.5x	110mm	2.4mm	16µm	0.022	2/3″	C	-	6x8mm	4.5x6mm
TC-10-110	1.0x	110mm	1.3mm	14µm	0.025	2/3″	C	6.6X8.8mm	4.8x6.4mm	3.6x4.8mm
TC-10-110C	1.0x	110mm	1.3mm	14µm	0.025	2/3″	C	6.6X8.8mm	4.8x6.4mm	3.6x4.8mm
TC-20-110	2.0x	110mm	0.44mm	9µm	0.04	2/3″	C	-	2.4x3.2mm	1.8x.24mm
TC-20-110C	2.0x	110mm	0.44mm	9µm	0.04	2/3″	C	-	2.4x3.2mm	1.8x.24mm
TC-40-110	4.0x	110mm	0.22mm	7µm	0.05	2/3″	C	-	1.2x1.6mm	0.9x1.2mm
TC-40-110C	4.0x	110mm	0.22mm	7µm	0.05	2/3″	C	-	1.2x1.6mm	0.9x1.2mm
TC-60-110	6.0x	110mm	0.19mm	7µm	0.05	2/3″	C	-	0.8x1.07mm	0.6x0.8mm
TC-60-110C	6.0x	110mm	0.19mm	7µm	0.05	2/3″	C	-	0.8x1.07mm	0.6x0.8mm

Long WD (156mm)

Lensagon No.	Mag.	WD	D.O.F.	Res.	NA	CCD		F.O.V on 2/3″	F.O.V on 1/2″	F.O.V on 1/3″
TC-05-156	0.5x	156mm	3.9mm	23µm	0.015	1/2″	C	-	6x8mm	4.5x6mm
TC-05-156C	0.5x	156mm	3.9mm	23µm	0.015	1/2″	C	-	6x8mm	4.5x6mm
TC-05-156P	0.5x	156mm	3.9mm	23µm	0.015	1/2″	C	-	6x8mm	4.5x6mm
TC-10-156	1.0x	156mm	1.0mm	12µm	0.03	1/2″	C	-	4.8x6.4mm	3.6x4.8mm
TC-10-156C	1.0x	156mm	1.0mm	12µm	0.03	1/2″	C	-	4.8x6.4mm	3.6x4.8mm
TC-20-156	2.0x	156mm	0.44mm	9µm	0.04	1/2″	C	-	2.4x3.2mm	1.8x.24mm
TC-20-156C	2.0x	156mm	0.44mm	9µm	0.04	1/2″	C	-	2.4x3.2mm	1.8x.24mm
TC-30-156	3.0x	156mm	0.34mm	9.6µm	0.04	1/2″	C	-	1.6x2.3mm	1.2x1.6mm
TC-30-156C	3.0x	156mm	0.34mm	9.6µm	0.04	1/2″	C	-	1.6x2.3mm	1.2x1.6mm

Super Long WD (218mm)

Lensagon No.	Mag.	WD	D.O.F.	Res.	NA	CCD		F.O.V on 2/3″	F.O.V on 1/2″	F.O.V on 1/3″
TC-10-220	1.0x	218mm	1.24mm	14µm	0.025	1/2″	C	-	4.8x6.4mm	3.6x4.8mm
TC-10-220C	1.0x	218mm	1.24mm	14µm	0.025	1/2″	C	-	4.8x6.4mm	3.6x4.8mm
TC-20-220	2.0x	218mm	0.67mm	11µm	0.03	1/2″	C	-	2.4x3.2mm	1.8x.24mm
TC-20-220C	2.0x	218mm	0.67mm	11µm	0.03	1/2″	C	-	2.4x3.2mm	1.8x.24mm
TC-30-220	3.0x	218mm	0.41mm	9.6µm	0.035	1/2″	C	-	1.6x2.3mm	1.2x1.6mm
TC-30-220C	3.0x	218mm	0.41mm	9.6µm	0.035	1/2″	C	-	1.6x2.3mm	1.2x1.6mm

Super Long WD (290mm)

Lensagon No.	Mag.	WD	D.O.F.	Res.	NA	CCD		F.O.V on 2/3″	F.O.V on 1/2″	F.O.V on 1/3″
TC-10-290	1.0x	290mm	1.24mm	13µm	0.025	1/2″	C	-	4.8x6.4mm	3.6x4.8mm
TC-10-290C	1.0x	290mm	1.24mm	13µm	0.025	1/2″	C	-	4.8x6.4mm	3.6x4.8mm
TC-20-290	2.0x	290mm	0.67mm	11µm	0.03	1/2″	C	-	2.4x3.2mm	1.8x.24mm
TC-20-290C	2.0x	290mm	0.67mm	11µm	0.03	1/2″	C	-	2.4x3.2mm	1.8x.24mm
TC-30-290	3.0x	290mm	0.41mm	9.6µm	0.035	1/2″	C	-	1.6x2.3mm	1.2x1.6mm
TC-30-290C	3.0x	290mm	0.41mm	9.6µm	0.035	1/2″	C	-	1.6x2.3mm	1.2x1.6mm

Switchable Magnification Object-side Telecentric Lenses

Lensation has introduced a new type of object-side telecentric lens that offers two different levels of magnification in one lens. Uniquely the working distance and the effective F number stay unchanged when magnification is switched. This makes burdensome readjustment of working distance and light sources a thing of the past. Four levels of long working distances (115mm, 156mm, 220mm, 290mm) and three levels of magnification (0.5x~1.0x, 1.0~2.0x, 2.0x~4.0x) are available.

Lensagon No.	WD	Mag.	NA	Eff. F No.	Resolving PW	D.O.F.	Distortion	Coaxial Light
TW-1020-115C	115mm	1.0x	0.02	25	16.8µm	1.7mm	+0.16%	incl.
		2.0x	0.04		8.4µm	0.42mm	+0.11%	
TW-2040-115C	115mm	2.0x	0.03	33.3	11.2µm	0.64mm	+0.07%	incl.
		4.0x	0.06		5.6µm	0.16mm	+0.06%	
TW-0510-156	156mm	0.5x	0.015	16.7	22.4µm	3.9mm	+0.08%	- - -
		1.0x	0.03		11.2µm	1.0mm	+0.10%	
TW-1020-156	156mm	1.0x	0.02	25	16.8µm	1.7mm	+0.04%	incl.
		2.0x	0.04		8.4µm	0.42mm	+0.04%	
TW-2040-156C	156mm	2.0x	0.02	50	16.8µm	1.19mm	+0.04%	incl.
		4.0x	0.04		8.4µm	0.30mm	+0.04%	
TW-0510-220	220mm	0.5x	0.0167	15	20µm	3.38mm	+0.03%	incl.
		1.0x	0.0333		10µm	0.8mm	+0.08%	
TW-1020-220C	220mm	1.0x	0.02	25	16.8µm	1.7mm	+0.04%	incl.
		2.0x	0.04		8.4µm	0.42mm	+0.05%	
TW-0510-290	290mm	0.5x	0.015	16.7	22.4µm	3.9mm	0%	incl.
		1.0x	0.03		11.2µm	1.0mm	+0.04%	
TW-1020-290C	290mm	1.0x	0.015	33.3	22.4µm	2.6mm	+0.03%	incl.
		2.0x	0.03		11.2µm	0.64mm	+0.04%	

Telecentric Zoom Lenses

Features

- Telecentricity at any magnification
- Suitable for high resolution megapixel cameras
- Magnification can be converted from 0.25 x to 2.6x by using front converter
- Less shading and keeps uniformity of intensity
- TV distortion less than 0.01%

Lensagon No.	Mag.	WD	Depth of Field	Resolution	NA	CCD	Mount
TZ0510	0.5×-1.0×	174mm-114mm	1.20mm-0.47mm	12.5µm-9.8µm	0.066-0.085	2/3″	C
TZ0513	0.5×-1.3×	173mm-97mm	1.84mm-0.52mm	8µm-6.4µm	0.044-0.059	2/3″	C

Values when the converter is attached to TZ0513:

Lensagon No.	Mag.	WD	Application
FC02510	0.25×-1.0×	323.2mm-115.6mm	Front converter for TZ0513
FC1426	1.4×-2.6×	56.2mm-42.6mm	Front converter for TZ0513

Depth of field is calculated assuming a horizontal 320 TV resolution using 1/2″ CCD camera (permissible circle of confusion. 40µ)

Telecentric Lenses for remote head CCD ø17mm, ø12mm

ø17mm • WD 40mm

Lensagon No.	Mag.	WD	D.O.F.	Res.	NA	CCD	F.O.V on 2/3"	F.O.V on 1/2"	F.O.V on 1/3"
T17D-10-40/C	1.0x	40.6mm	1.2mm	16µm	0.025	1/2"	-	4.8x6.4mm	-
T17D-20-40/C	2.0x	40.4mm	0.3mm	16µm	0.05	1/2"	-	2.4X3.2mm	-
T17D-30-40/C	3.0x	38.14mm	0.3mm	14µm	0.05	1/2"	-	1.6x2.13mm	-
T17D-40-40/C	4.0x	40mm	0.15mm	14µm	0.07	1/2"	-	1.2x1.6mm	-

ø17mm • WD 65mm

Lensagon No.	Mag.	WD	D.O.F.	Res.	NA	CCD	F.O.V on 2/3"	F.O.V on 1/2"	F.O.V on 1/3"
T17D-08-65/C	0.8x	65mm	1.1mm	13µm	0.025	1/2"	-	6x8mm	-
T17D-10-65/C	1.0x	65mm	1.2mm	13µm	0.025	1/2"	-	4.8x6.4mm	-
T17D-20-65/C	2.0x	65mm	0.27mm	6µm	0.056	1/2"	-	2.4X3.2mm	-
T17D-40-65/C	4.0x	65mm	0.12mm	4.7µm	0.072	1/2"	-	1.2x1.6mm	-
T17D-60-65/C	6.0x	65mm	0.099mm	4.7µm	0.072	1/2"	-	0.8x1.07mm	-
T17D-80-65/C	8.0x	65mm	0.087mm	4.7µm	0.072	1/2"	-	0.6x0.8mm	-

ø17mm • WD 70mm

Lensagon No.	Mag.	WD	D.O.F.	Res.	NA	CCD	F.O.V on 2/3"	F.O.V on 1/2"	F.O.V on 1/3"
T17D-10-70/C	1.0x	71mm	1.2mm	13µm	0.025	1/2"	-	4.8x6.4mm	-
T17D-20-70/C	2.0x	71mm	0.5mm	10µm	0.038	1/2"	-	2.4X3.2mm	-
T17D-40-70/C	4.0x	71mm	0.2mm	6µm	0.063	1/2"	-	1.2x1.6mm	-
T17D-60-70/C	6.0x	71mm	0.2mm	6µm	0.063	1/2"	-	0.8x1.07mm	-

ø17mm • WD 110mm

Lensagon No.	Mag.	WD	D.O.F.	Res.	NA	CCD	F.O.V on 2/3"	F.O.V on 1/2"	F.O.V on 1/3"
T17D-10-110/C	1.0x	110mm	1.3mm	14µm	0.015	1/2"	-	4.8x6.4mm	-
T17D-20-110/C	2.0x	110mm	0.44mm	9µm	0.015	1/2"	-	2.4X3.2mm	-
T17D-40-110/C	4.0x	110mm	0.22mm	7µm	0.015	1/2"	-	1.2x1.6mm	-
T17D-60-110/C	6.0x	110mm	0.19mm	7µm	0.03	1/2"	-	0.8x1.07mm	-

ø12mm • WD 40mm

Lensagon No.	Mag.	WD	D.O.F.	Res.	NA	CCD	F.O.V on 2/3"	F.O.V on 1/2"	F.O.V on 1/3"
T12D-20-40/C	2.0x	39.43mm	0.3mm	7µm	0.05	1/3"	-	-	1.8x2.4mm
T12D-40-40/C	4.0x	39mm	0.15mm	5µm	0.07	1/3"	-	-	0.9x1.2mm

ø12mm • WD 65mm

Lensagon No.	Mag.	WD	D.O.F.	Res.	NA	CCD	F.O.V on 2/3"	F.O.V on 1/2"	F.O.V on 1/3"
T12D-20-65/C	2.0x	65.mm	0.27mm	6µm	0.025	1/3"	-	1.8x2.4mm	-
T12D-40-65/C	4.0x	65mm	0.12mm	4.7µm	0.025	1/3"	-	0.9x1.2mm	-
T12D-60-65/C	6.0x	65mm	0.099mm	4.7µm	0.056	1/3"	-	0.6x0.8mm	-
T12D-80-65/C	8.0x	65mm	0.087mm	4.7µm	0.072	1/3"	-	0.45x0.6mm	-

ø12mm • WD 110mm

Lensagon No.	Mag.	WD	D.O.F.	Res.	NA	CCD	F.O.V on 2/3"	F.O.V on 1/2"	F.O.V on 1/3"
T12D-20-110/C	2.0x	110mm	0.44mm	9µm	0.04	1/3"	-	1.8x2.4mm	-
T12D-40-110/C	4.0x	110mm	0.22mm	7µm	0.05	1/3"	-	0.9x1.2mm	-
T12D-60-110/C	6.0x	110mm	0.19mm	7µm	0.05	1/3"	-	0.6x0.8mm	-

TL4K Series: High Accuracy Telecentric Line Scan Lenses

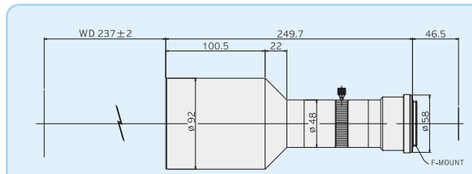
We have several telecentric lenses for 4K line CCD camera. (7mm/Pixel)

Features

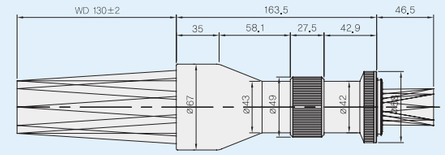
- High accuracy lens for 4K line CCD camera
- Very good telecentricity and high contrast image
- Low distortion over the whole field of view
- IRIS diaphragm for adjusting D.O.F
- F-mount
- Object-side telecentric lens

Lensagon No.	Mag.	WD	D.O.F	Res. (Obj.)	NA	CCD size (max.)	M	F No.	Telecentricity (< Degree)	Optical Distortion (%)
TL4K-05-237I	0.5X	237 mm	1.5 mm	4.2 µm	0.04	4K(7u)	F	6.25	0.02	0.08
TL4K-07-130I	0.7X	130 mm	303 µm	5.1 µm	0.066	4K(7u)	F	5.3	0.04	0.05
TL4K-092-170I	0.92X	170 mm	250 µm	5.2 µm	0.064	4K(7u)	F	7.14	0.01	0.03
TL4K-20-102	2.0X	102 mm	111 µm	3.7 µm	0.09	4K(7u)	F	11.1	0.03	0.07

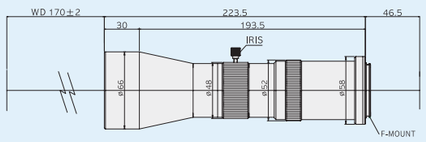
I= Manual Iris



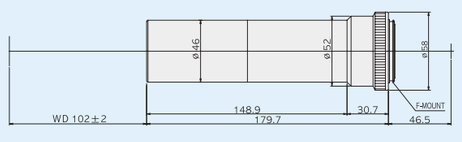
TL4K-05-237I



TL4K-07-130I



TL4K-092-170I



TL4K-20-102

Macro Lenses

Non-telecentric lenses for machine vision applications like factory automation. We can support many types of CCD cameras like 1/2", 2/3", 2M, 4M, 5M & 12M with high resolution and low distortion quality.

Features:
- Fixed magnification
  (can be to modified to another magnification)
- Mount: C-mount, F-mount & M48-P0.75
- IRIS diaphragm adapted (some lenses)

Standard

Lensagon No.	Mag.	WD	Res. (Obj.)	NA	F No.	D.O.F. (µm)	Optical Distort. (%)	CCD size (max.)	Mount
MCST-034-120	0.34X	120	15.80	0.0212	8.00	5.47	0.07	1/2"	C
MCST-053-110	0.53X	110	11.18	0.0300	9.00	2.53	0.06	1/2"	C
MCST-06-117	0.6X	117	9.30	0.0360	8.30	1.80	0.02	1/2"	C
MCST-06-120	0.6X	120	9.30	0.0360	8.30	1.80	0.04	1/2"	C
MCST-08-100	0.8X	100	8.20	0.0410	9.70	1.20	0.03	1/2"	C
MCST-12-100	1.2X	100	7.00	0.0430	13.90	780	0.03	1/2"	C
MCST-20-100	2.0X	100	7.10	0.0470	21.20	430	0.04	1/2"	C
MCST-40-92	4.0X	92	6.10	0.0550	36.40	180	0.01	1/2"	C
MCST-019-240	0.19X	240	28.00	0.0120	7.77	18 mm	0.13	2/3"	C
MCST-03-240	0.3X	240	17.66	0.0190	7.80	7.0 mm	0.14	2/3"	C
MCST-057-200	0.57X	200	11.57	0.0290	10.00	2.46 mm	0.04	2/3"	C
For 2 Megapixel sensors									
MC2M-0198-185	0.198X	185	21.20	0.0158	6.25	6.37 mm	0.06	1/1.8"	C
MC2M-025-194I	0.25X	194	8.50	0.0395	2.80	3.6 mm	0.01	2M	C
MC2M-047-176	0.47X	176	10.17	0.0330	7.14	2.6 mm	0.28	2M	C
MC2M-055-164	0.55X	164	9.80	0.0342	8.10	2.1 mm	0.06	2M	C
MC2M-05-253	0.5X	253	11.18	0.0300	8.33	2.66 mm	0.06	2M	C
MC2M-075-164	0.75X	164	8.90	0.0376	10.00	1.3 mm	0.06	2M	C
For 4 Megapixel sensors									
MC4M-0185-225I	0.185X	225	18.10	0.0185	5.00	11.6 mm	0.01	4M	C
MC4M-0215-226I	0.215X	226	20.00	0.0170	6.25	10.8 mm	0.01	4M	C
MC4M-0247-267	0.247X	267	13.60	0.0247	5.00	6.55 mm	0.01	4M	F
MC4M-025-194I	0.25X	194	16.00	0.0230	5.00	6.55 mm	0.01	4M	C
MC4M-037-261	0.37X	261	9.10	0.0370	5.00	2.9 mm	0.01	4M	F
MC4M-055-210	0.55X	210	10.20	0.0330	8.30	2.2 mm	0.04	4M	F
MC4M-075-193	0.75X	193	8.90	0.0376	10.00	1.4 mm	0.06	4M	F
For 5 Megapixel sensors									
MC5M-019-240	0.19X	240	17.70	0.0190	5.00	11.0 mm	0.03	2/3"	C
MC5M-0257-185	0.257X	185	16.80	0.0200	6.25	3.8 mm	0.01	2/3"	C
For 12 Megapixel sensors									
MC12M-054-235I	0.54X	235	7.80	0.0430	6.25	150.00	0.05	12M	M48

LENSATION • Imaging Products • 2010/3

Macro Lenses

High Precision Macro Zoom Lenses

Features
- Standard type zoom lenses designed based on microscopic technologies.
- Two models available : Straight type (MCHZ0745ST) and Coaxial type (MCHZ0850CX)
- High magnification, high resolution, high contrast.
- Coaxial episcopic type (MCHZ0850CX) with a built-in polarising plate.

Lensagon No.		Mag.	Ratio	WD	D.O.F	Res.	Effec. F No.	F.O.V on 2/3" Cam
MCHZ0745ST		0.7x~4.5x	6.4x	90mm	±1.0~±0.11mm	17~5µm	16~30	9.4x12.5mm ~1.46x1.95mm
With Front Converter Lens (optional)	0.5x	0.35x~2.25x	6.4x	173mm	±4.0~±0.44mm	35~10µm	16~30	18.8x25mm ~ 2.9x3.9mm
	0.75x	0.525x~3.375x	6.4x	112mm	±1.8~±0.19mm	23~7µm	16~30	12.5x16.7mm ~1.95x2.6mm
	1.5x	1.05x~6.75x	6.4x	50.3mm	±0.45~±0.49mm	11~3µm	16~30	6.3x8.4mm ~ 0.98x1.3mm
	2x	1.4x~9.0x	6.4x	35.5mm	±0.25~±0.028mm	9~2.5µm	16~30	4.7x6.3mm ~ 0.7x0.98mm
MCHZ0850CX		0.8x~5.0x	6.25x	75mm	±0.9~±0.1mm	17~4µm	16~30	8.25x11mm ~ 1.32x1.76mm
With Front Converter Lens	1.5x	1.2x~7.5x	6.25x	37mm	±0.2~±0.044mm	11~2.7µm	16~30	5.5x7.3mm ~ 0.88x1.17mm
	2.0x	1.6x~10.0x	6.25x	24.4mm	±0.15~±0.025mm	9~2µm	16~30	4.1x5.5mm ~ 0.66x0.88mm

High Performance Compact Macro Zoom Lenses

Features:
- Zoom lenses in compact design
- 9 models from low to high magnification
- MCZ0108, MCZ0216, MCZ0432 are manual iris type

Macro Zoom Lenses for 1/2" sensors

Lensagon No.	Mag.	Ratio	WD	D.O.F	Res.	Effec. F No.	F.O.V on 1/2" Cam
MCZ0108	0.1x~0.8x	8x	195mm	±20.0~±0.31mm	50~15µm	7.5~close	48x64mm ~6x8mm
MCZ0216	0.2x~1.6x	8x	87mm	±4.0~±0.2mm	50~15µm	7.5~close	24x32mm ~ 3x4mm
MCZ0432	0.4x~3.2x	8x	87mm	±1.0~±0.1mm	50~15µm	15~close	12x16mm ~1.5x2mm
MCZ0648	0.6x~4.8x	8x	36.1mm	±1.0~±0.1mm	17~6µm	22.2~22.6	8x10.6mm ~ 1.0x1.33mm
MCZ01304	0.133x~0.4x	3x	200mm	±21.0~±2.4mm	45~20µm	7.6	36x48mm ~ 12x16mm
MCZ02608	0.266xx~0.8x	3x	90mm	±5.3~±0.6mm	23~10µm	7.6	18x24mm ~ 6x8mm

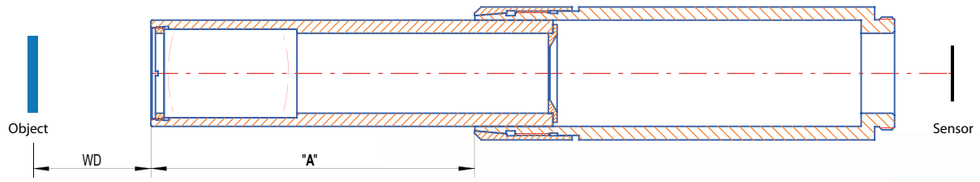
Macro Zoom Lenses for 1/3" sensors

Lensagon No.	Mag.	Ratio	WD	D.O.F	Res.	Effec. F No.	F.O.V on 1/3" Cam
MCZ01711-S13	0.17x~1.15x	6.8x	152mm	±10.0~±0.22mm	55~8.1µm	13	28.2x21.1mm ~4.17x3.13mm
MCZ01308-S13	0.13x~0.89x	6.8x	200mm	±17.0~±0.36mm	72~10µm	12	36.9x27.7mm ~ 5.4x4.0mm
MCZ00906-S13	0.095x~0.65x	6.8x	280mm	±32.0~±0.68mm	98~14µm	13	50.5x37.9mm ~7.38x5.53mm

MCV5M Varifocal Macro Zoom Lens

Lensation presents the classy new MCV5M, a variable 5-Megapixel macro lens. It is particularly characterised by its excellent image quality at a very high depth of field.

The easy-to-use locking mechanism allows freely adjustable magnification. This alleviates the need for system vendors to keep a larger selection of lenses with a fixed setting in stock continuously. A special highlight is the near distortion-free optics, which makes the MCV5M ideal for use in precise measuring applications. Our new C-Mount lens is suitable for 1/2.5" sensors (max. 2/3") and provides magnification from 0.58x at 146mm working distance (WD) to 1.725x at 75mm WD.



For more information and instructions on how to calculate the working distance, please visit our website and click on "download data sheet":

www.lensation.de/mcv5m

Precise Compact Macro Lenses

Features:

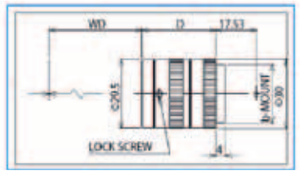
- Less than 0.1% optical distortion with low magnification and wide angle
- Suitable for precision measurement and image inspection
- Light weight, compact design

Precise Compact Macro Lenses

Lensagon No.	Mag.	WD	Depth of Field	Optical Resolution	NA	CCD size	Mount
MC015DF	0.05 - 0.15x	215 - 66mm	72 - 8.7mm	73 - 26µm	0.005 - 0.014	1/2"	C
MC02DF	0.08 - 0.2x	202 - 82mm	28 - 5.1mm	46 - 20.3µm	0.008 - 0.018	1/2"	C
MC04DF	0.15 - 0.4x	180 - 78mm	7.5 - 1.32mm	23 - 10.5µm	0.016 - 0.035	1/2"	C
MC06DF	0.4 - 0.6x	113 - 83mm	1.09 - 0.57mm	8.9 - 6.8 µm	0.041 - 0.054	1/2"	C

Multi-purpose Purpose Macro Lenses

Variable magnification type and Fixed magnification type, both types can be combined with High resolution sensor lenses, close-up rings and TV rear converter lenses. By doing so, micro photography is made possible at a longer working distance.



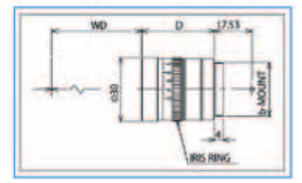
Variable magnification type

With lens alone, image magnification can varied. However the working distance will relatively change as well

Lensagon No.	MC3505VM				MC5205VM				MC7005VM				MC10505VM			
Magnification	0.1x	0.15x	0.2x	0.25x	0.15x	0.2x	0.3x	0.4x	0.2x	0.3x	0.4x	0.5x	0.35x	0.5x	0.7x	0.8x
WD	337	224	173	140	337	224	173	140	337	224	173	140	337	224	173	140
F No.	3.5				5.25				7.0				10.5			
Size	D=32mm/40g				D=36.5mm/50g				D=41mm/55g				D=45.5mm/65g			

Lensagon No.	MC3510VM				MC5210VM				MC7010VM				MC10510VM			
Magnification	0.25x	0.3x	0.35x	0.4x	0.4x	0.45x	0.5x	0.6x	0.5x	0.6x	0.7x	0.8x	0.8x	0.9x	1x	1.3x
WD	140	107	103	92	140	107	103	92	140	107	103	92	140	107	103	92
F No.	3.5				5.25				7.0				10.5			
Size	D=37mm/42g				D=41.5mm/52g				D=46mm/57g				D=50.5mm/67g			

Lensagon No.	MC3515VM				MC5215VM				MC7015VM				MC10515VM			
Magnification	0.4x	0.45x	0.5x	0.55x	0.6x	0.7x	0.8x	0.87x	0.8x	0.9x	1x	1.1x	1.3x	1.5x	1.6x	1.8x
WD	87	80	75	70	87	80	75	70	87	80	75	70	87	80	75	70
F No.	3.5				5.25				7.0				10.5			
Size	D=42mm/48g				D=46.5mm/58g				D=51mm/63g				D=55.5mm/73g			



Fixed magnification type

Combined with oblique illumination, image with great depth of field can be obtained.

Lensagon No.	Mag.	WD	F No.	Size	Lensagon No.	Mag.	WD	F No.	Size
MC002F01	0.1x	330mm	3.5	D=37.5mm/45g	MC065F03	0.3x	113mm	3.5	D=43.5mm/50g
MC002F015	0.15x	330mm	5.25	D=42mm/50g	MC065F045	0.45x	113mm	5.25	D=48mm/60g
MC002F02	0.2x	330mm	7.0	D=46.5mm/60g	MC065F06	0.6x	113mm	7.0	D=52.5mm/65g
MC002F03	0.3x	330mm	10.5	D=51mm/70g	MC065F09	0.9x	113mm	10.5	D=57mm/75g
MC002F04	0.4x	330mm	14.0	D=55.5mm/75g	MC065F12	1.2x	113mm	14.0	D=61.5mm/80g
MC017F015	015x	221mm	3.5	D=39mm/48g	MC100F04	0.4x	85mm	3.5	D=47mm/50g
MC017F0225	0.0225x	221mm	5.25	D=43.5mm/58g	MC100F06	0.6x	85mm	5.25	D=51.5mm/60g
MC017F03	0.3x	221mm	7.0	D=48mm/63g	MC100F08	0.8x	85mm	7.0	D=56mm/65g
MC017F045	0.45x	221mm	10.5	D=52.5mm/73g	MC100F12	1.2x	85mm	10.5	D=60.5mm/75g
MC017F06	0.6x	221mm	14.0	D=57mm/78g	MC100F16	1.6x	85mm	14.0	D=65mm/80g
MC032F02	0.2x	172mm	3.5	D=40.5mm/50g	MC130D05	0.5x	68mm	3.5	D=50mm/55g
MC032F03	0.3x	172mm	5.25	D=45mm/60g	MC130D075	0.75x	68mm	5.25	D=54.5mm/65g
MC032F04	0.4x	172mm	7.0	D=49.5mm/65g	MC130D10	1.0x	68mm	7.0	D=59mm/70g
MC032F06	0.6x	172mm	10.5	D=54mm/75g	MC130D15	1.5x	68mm	10.5	D=63.5mm/80g
MC032F08	0.8x	172mm	14.0	D=58.5mm/80g	MC130D20	2.0x	68mm	14.0	D=68mm/85g

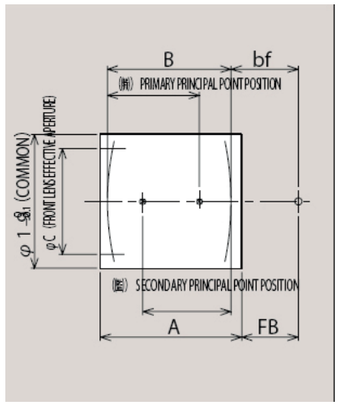
High Resolution Sensor Lenses

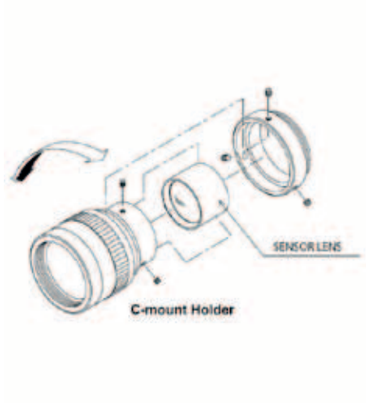
High resolution lenses for sensors have a central resolution power of 150 line pairs/mm which is twice that of standard CCTV lenses, and are most suited for image measurement or analysis. They are designed to be integrated into a C-Mount holder and Iris tube (manual iris) in order to be combined with C-Mount cameras easily.

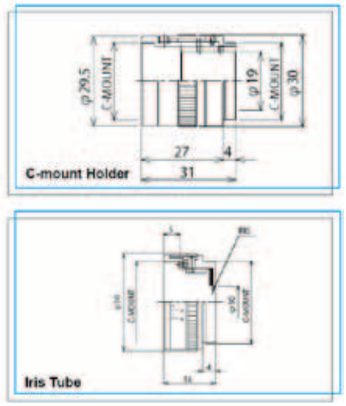
Features:
- 11 models from focal length 13mm to 50mm
- Light weight, compact design, high resolution.
- Best suited to use as a macro lenses
- Compatible with 2/3", 1/2", 1/3"cameras
- Compatible with 1028 bit line sensor cameras

Common Specification:
- Central resolution power 150 line pairs/mm
- Image circle ø 16mm
- AR coating of visible spectral region
- External diameter size ø 19mm
- Fixed iris

Model No.	Focal length	F No.	A	FB	B	bf	øC	I. Principal Point	II. Principal Point	Distortion
SL13	13.3mm	2.8	19.0	6.0	13.41	8.82	10.0	14.94	-4.5	2.0%
SL15	15.0mm	2.5	22.0	6.5	17.2	9.48	10.4	16.61	-5.56	1.0%
SL17	17.0mm	2.5	23.5	8.3	18.63	10.9	10.9	18.17	-6.1	1.2%
SL20	19.6mm	2.5	24.0	12.0	19.66	14.74	13.0	20.27	-4.82	1.2%
SL22	22mm	2.5	26.5	13.5	21.78	16.44	13.6	21.98	-5.56	1.5%
SL25	25.4mm	2.8	21.5	15.0	16.64	17.71	11.6	11.88	-7.7	0.8%
SL28	28.0mm	3.5	25.6	10.7	22.57	12.58	16.0	18.34	-15.33	0.4%
SL32	32.0mm	3.5	25.0	16.48	22.415	17.85	16.0	18.44	-14.16	0.1%
SL35	35.0mm	3.5	25.0	17.65	22.9	19.35	16.0	16.85	-15.73	0.6%
SL40	40.0mm	4.0	19.0	31.29	16.13	32.19	10.0	7.69	-7.8	0.8%
SL50	50.0mm	4.0	21.0	39.5	18.55	41.47	16.5	10.18	-8.50	1.2%







Economy Megapixel C-Mount Lenses

Lensagon No.	C3M50028	CM6014N	CM8014N	CM12014N
				
Image Format	2/3"	1/2"	1/2"	1/2"
Mount	C	C	C	C
Focal Length	50mm	6mm	8mm	12mm
Aperture	1:2.8	1:1.4	1:1.4	1:1.4
M.O.D.	1m	0.3m	0.3m	0.3m
Zoom	-	-	-	-
Focus	Manual with lock	Manual with lock	Manual with lock	Manual with lock
Iris	Manual with lock	Manual with lock	Manual with lock	Manual with lock
Angle of View (H x V)	5.4° x 3.5°	29.5° x 22.1°	46.0° x 34.5°	30.8° x 23.1°
Back Focal Length	25mm	12.9mm	13.2mm	13.4mm
Weight	60g	65g	66g	75g
Note	3 Megapixel, OEM	Megapixel	Megapixel	Megapixel

Lensagon No.	CVM45100	CVM60120	CVM90220
			
Image Format	1/2"	1/2"	1/2"
Mount	C	C	C
Focal Length	4.5~10mm	6.0~12mm	9.0~22mm
Aperture	1:1.4	1:1.6	1:2.0
M.O.D.	0.2m	0.2m	0.3m
Zoom	Manual with lock	Manual with lock	Manual with lock
Focus	Manual with lock	Manual with lock	Manual with lock
Iris	Manual	Manual	Fixed
Angle of View (H x V)	Wide: 80.8° x 60.6° Tele: 37.3° x 27.9°	Wide: 53.0° x 39.75° Tele: 28.0° x 21.0°	Wide: 41.0° x 30.8° Tele: 17.0° x 12.8°
Back Focal Length	9.5mm	9.28mm	9.27mm
Weight	72g	72g	50g
Note	Megapixel	Megapixel	Megapixel

Compact Megapixel C-Mount Lenses

Lensagon No.	CHR4020	CHR6020	CHR8020	CHR12020
				
Image Format	1/2"	1/2"	1/2"	1/2"
Mount	C	C	C	C
Focal Length	4mm	6mm	8mm	12mm
Aperture	1:2.0	1:2.0	1:2.0	1:2.0
M.O.D.	0.4m	0.4m	0.4m	0.4m
Zoom	-	-	-	-
Focus	Manual	Manua	Manual	Manual
Iris	Fixed	Fixed	Fixed	Fixed
Angle of View(HxV)	95.0°x71.6°	62.2°x47.2°	45.6°x35.0°	30.7°x22.9°
Back Focal Length	7.4mm	10.7mm	8.6mm	10.9mm
Weight	31g	38g	24g	38g
Note	1.3 Mega	1.3 Mega	1.3 Mega	1.3Mega

Fisheye C-Mount Lenses

Lensagon No.	CF2M1414
Image Format	1/2"
Mount	C
Focal Length	1.45mm
Aperture	1:1.4
Angle of view	185° (vertical)
Effective Image plane	Ø 4.8 (1/2" vertical measurement)
Central Resolving Power	200mm lines/mm
Peripheral Resolving PW	120mm lines/mm
Image	Upright/Standing Image
Iris Range	F1.4~F1.6
Focus Function	0.2~infinite
Optical Axis Adjustment	Lockable by 3(M2.5) screws
Back Focal	10.53mm
Lens Dimensions	Ø 40 x 52.3mm

New 185° Fisheye C-Mount lens for 2 megapixel. It offers much improved image clarity with a superior resolution power at both the image center and peripheral areas.

Lensagon No.	FC825M15
Image Format	4/3" (Image Circle 15.4mm)
Mount	C
Focal Length	8mm
Aperture	1:2.5
M.O.D.	0.7m
Zoom	-
Focus	Manual with lock
Iris	Fixed
Angle of View	180° (vertical)
Back Focal Length	15.6mm
Weight	102g
Note	4 Megapixel for 15.2x15.2mm sensors

4 Megapixel unique solution Fisheye C-Mount lens, 180° for 15.2x15.2mm sensors (designed for Kodak 4 Megapixel sensor KAI4021)

Lensagon No.	CF5M1916F
Image Format	1/2.5" (Image Circle 5.7mm)
Mount	C
Focal Length	1.87mm
Aperture	1:1.6
Operation range	0.15m~∞
Zoom	-
Focus	Fixed
Iris	Manual
Angle of View	180° (horizontal)
Back Focal Length	4.82mm
Weight	---
Note	IR, 5 Megapixel
Lens Dimensions	Ø 36 x 34.3mm

5 Megapixel, Ultra High Resolution Fisheye C-Mount lens.
Angle of view=180 degree

Zoom Lens Modules

The Lensagon Zoom Lens Units are well suited for 1/4" or 1/2.5" CCD-Sensors and offer a wide focal range from wide angle to nearly f=90mm tele. The closest working distance is merely 10cm (!) for wide angle. Up to 10 lens elements, including two aspherics produce some of the finest lens units around. The workmanship of these lenses is of an extremely high standard.

Lensagon No.	ZX3S125	ZX12S14	ZX22S14
Zoom	3x	12x	22x
Sensor size	1/2.5" CCD	1/4" CCD	1/4" CCD
Focal Length	6.0mm ~ 18.0mm	4.0mm ~ 48.0mm	4.0mm ~ 88.0mm
F-Number	F3.1 (Wide x1) ~ F5.6 (Tele x3)	F1.7 (Wide x1) ~ F3.7 (Tele x12)	F1.7 (Wide x1) ~ F3.8 (Tele x22)
Lens Composition	3 groups, 8 elements (6 glass + 2 plastic aspheric)	4 groups, 10 elements (8 glass + 2 plastic aspheric)	4 groups, 10 elements (8 glass + 2 plastic aspheric)
Focus range	Wide (x1) 0.3m ~ INF	Wide (x1) 0.1m ~ INF	Wide (x1) 0.1m ~ INF
	Tele (x22) 0.6m ~ INF	Tele (x12) 2.5m ~ INF	Tele (x22) 1.2m ~ INF
	Macro 5.0cm (on Z2 only)		
Effective Image Circle	Ø 7.6mm (1/2.5" CCD)	Ø 4.9mm (1/4" CCD)	Ø 4.9mm (1/4" CCD)
Resolution	200 lp/mm (center) 125 lp/mm (0.7 field)	160 lp/mm (center) 100 lp/mm (0.7 field)	160 lp/mm (center) 80 lp/mm (0.7 field)
TV distortion	-2.5% Wide (x1) 1.0% Tele (3x)	2.9% Wide (x1) 1.1% Tele (12x)	-4.2% Wide (x1) 1.9% Tele (22x)
Relative Illumination	Wide 70%, Tele 80% (1.0 Field)	Wide 90%, Tele 95% (1.0 Field)	Wide 95%, Tele 60% (1.0 Field)
Zoom Mechanism	1st+2nd group for zoom, Stepping Motor +/-0.0075mm	2nd group for zoom, Step Motor +/-0.0125mm	2nd group for zoom, Stepping Motor +/-0.02mm
Focus Mechanism	1st group for focus, Stepping Motor +/-0.005mm	4th group for focus, Step Motor +/-0.0125mm	4th group for focus, Stepping Motor +/-0.02mm
Lens drive method	Direct drive	Direct drive	Direct drive
Optical overall length	48mm	52mm	72mm
Weight	22g	45g	60g
Note	Documentation available	Documentation available	Ddocumentation available

Accessories

Accessories for S-Mount
- M12 x 0.5 Distance rings (5mm, 10mm)
- M12 to M14 Adapter
- M12 x 0.5 Lock ring (to fasten a lens to an S-Mount holder)
- S-Mount lens holders for board cameras

Accessories for C-Mount
- Distance rings (5mm, 10mm, 20mm, 40mm)
- S-Mount to C-Mount Adapter
- S-Mount to CS-Mount Adapter
- C-Mount to CS-Mount Adapter
- Rear Converter 1.5x, 2x, 2.5x, 3x, 4x, 5x

S-Mount Accessories

CS-Mount Lens Holder for PCB
To be mountet directly to PCB boards. Configurable with filter.

M12 Extension ring 5mm ST05
Material: Aluminium, Height: 5 mm

M12 Extension ring 10mm ST10
Material: Aluminium, Height: 10 mm

M12 to M14 Adapter
Material: Aluminium. For using M12x0.5 lenses in M14x0.5 mounts

S-mount lens holder 8mm SH01F08
Material: Plastic, mounting hole distance 22mm, Height: 8 mm, Width: 20.3 mm

S-mount lens holder 13mm SH02M13
Material: Plastic, mounting hole distance 22mm, Height: 13 mm, Width: 20.3 mm

S-mount lens holder 16mm SH03H16
Material: Aluminium, mounting hole distance 22mm, side hole for lock screw.Inner height 5.5mm

M12 x 0.5 Lock Ring
Height: 2 mm, Diameter: 15.8 mm, Black anodized

C-Mount Accessories

C-Mount to CS-Mount Adapter
Adapter with a male and a female c-mount thread and 5mm effective height, for use of c-mount lenses with cs-mount cameras

Extension Tube 40mm
Material: Aluminium, Height 40 mm
40mm extension tube for C-Mount lenses.

S-Mount to C-Mount Adapter Flat
Adapter with a male c-mount thread and a female M12x0.5 (s-mount) thread, for use of s-mount lenses in c-mount cameras. Flat version.

S-Mount to C-Mount Adapter High
Adapter with a male c-mount thread and a female M12x0.5 (s-mount) thread, for use of s-mount lenses in c-mount cameras. High version.

S-Mount to C-Mount Adapter Standard
Adapter with a male c-mount thread and a female M12x0.5 (s-mount) thread, for use of s-mount lenses in c-mount cameras.

Theia Technologies

Super Wide Angle No Distortion Lenses

Theia's patented Linear Optical Technology® gives an ultra wide field of view without barrel distortion. All lenses are multi-megapixel resolution and for cameras up to 1/2".

SY110 series: 1.67mm ultra wide. Up to 120° HFOV. Day/Night corrected. CS-mount and C-mount. Manual and autoiris.

SY125 series: 1.28mm ultra wide. **Widest** no distortion lens. Up to 135° HFOV. CS-mount and C-mount. Manual and autoiris.

SL183 series: Varifocal 1.8 - 3mm TrueZoom™. Up to 115° HFOV. Day/Night corrected. CS-mount. Manual and autoiris.

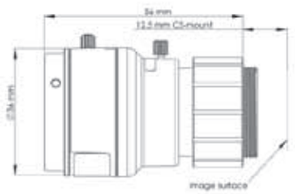
SL940 series: 9-40mm tele-photo lens for long reach and F.O.V. optimization. Day/Night corrected. CS-mount. Manual and autoiris.

Theia No.	F No.	Focal length	Resolution	Iris	D.O.F	Distortion	Weight	Mount	F.O.V. 1/4"	F.O.V. 1/3"	F.O.V. 1/2.5"
SY110M	1.8	1.67mm	3 MP	Man.	10cm	<1%	70g	CS	H: 94° V: 78° D: 107°	H: 110° V: 94° D: 122°	H: 120° V: 104° D: 130°
SY110A	1.8	1.67mm	3 MP	Auto	10cm	<1%	70g	CS			
MY110M	1.8	1.67mm	3 MP	Man.	10cm	<1%	110g	C			
SY125M	1.8	1.28mm	5 MP	Man.	10cm	<3%	100g	CS	H: 109° V: 93° D: 122°	H: 125° V: 109° D: 137°	H: 135° V: 119° D: 141°
SY125A	1.8	1.28mm	5 MP	Auto	10cm	<3%	100g	CS			
MY125M	1.8	1.28mm	5 MP	Man.	10cm	<3%	150g	C			
Theia No.	F No.	Focal length	Resolution	Iris	D.O.F	Distortion	Weight	Mount	F.O.V. 1/3"	F.O.V. 1/2.7"	F.O.V. 1/2.5"
SL183M	1.8	1.8-3.0mm	5 MP	Man.	0.5m	<1%	70g	CS	H: 105°-77° V: 90° - 62° D: 117°-90°	H: 111°-84° V: 92° - 64° D: 123°-96°	H: 115°-88° V: 99° - 71° D:126°-100°
SL183A	1.8	1.8-3.0mm	5 MP	Auto	0.5m	<1%	70g	CS			
Theia No.	F No.	Focal length	Resolution	Iris	Length	Distortion	Weight	Mount	F.O.V. 1/3"	F.O.V. 1/2.7"	F.O.V. 1/2.5"
SL940M	1.5	9 - 40mm	5 MP	Man.	<50mm	<1%	-	CS	H: 30°-7.1° V: 22°-5.3° D: 38°-8.8°	H: 37°-8.6° V: 20°-4.8° D: 42°-9.9°	H: 36° - 8.5° V: 27° - 6.3° D: 46°-10.6°
SL940A	1.5	9 - 40mm	5 MP	Auto	<50mm	<1%	-	CS			

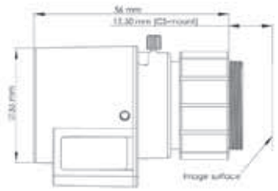
▲ 120° without distortion

Typical wide angle lens ►

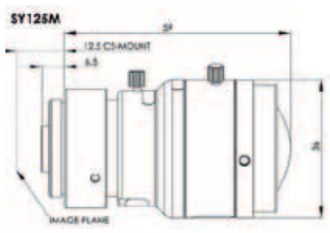
SY110M



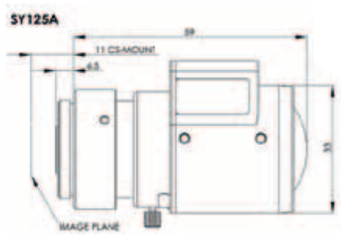
SY110A



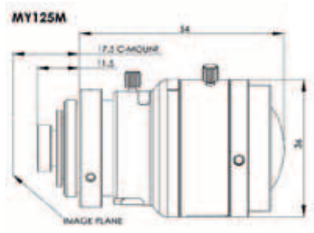
SY125M



SY125A



MY125M



Special

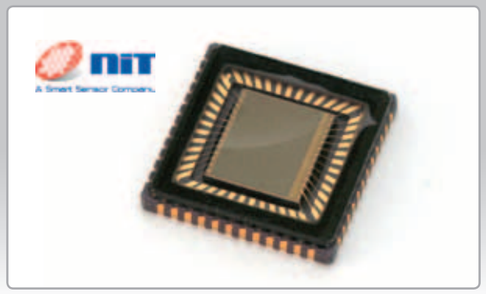
Distribution

LENSATION • Imaging Products • 2010/3

N.I.T. Smart Sensors

High Dynamic Range and Smart Imaging Sensors

Lensation proudly presents the exceptional CMOS-Sensors designed by NIT (New Imaging Technologies)



MAGIC sensors: HDR with unrivalled features.

- Constant contrast sensitivity over > 120db dynamic range (equivalent to >1 Mio. Gray levels on linear sensors standard)
- No visible fixed pattern noise, no saturation, no smear, no blooming, no shutter, no gain, no offset
- Conservation of all luminance information over > 120dB (change the exposure time AFTER the image is recorded !)

User-specified Smart Imaging Sensors
(intelligent processing features at pixel level)

The smart sensing concept is based on the combination of Smart Pixel and massively parallel analogue on-chip processing, using a combination of electrical and other physical laws.

The implementation results in high performance sensors operating at low power with high image processing speeds. The algorithms are encoded at hardware level , but can be done by parameter (Thresholds, Matrix coefficients for filtering etc.) !!!

Why would you want your own sensor?

- You need processing speeds faster than the fastest (non-scientific) cameras
- You have an idea for a high volume camera product, but smart cameras are too expensive and too big
- You have to suppress the image background
- You want to protect and secure your innovation and investment

Imatest Software

Imatest. The world's leading software package for testing digital image quality.

Lensation is distributor of the Imatest software packages and equipment for testing the quality of digital images produced by any imaging system - still shots or video, visible light or infrared.

Please contact us for further product information, demo versions and pricing.

Imatest software is used in product design, product assembly, and product reviews, as well as acceptance testing, and manu-facturing quality control.

Distribution

Field of View Table

*M.M = Monitor Magnification (14"monitor)

	1"		2/3"		1/2"		1/3"		1/4"	
	HxWxD	M.M.	HxWxD	M.M.	HxWxD	M.M.	HxWxD	M.M.	HxWxD	M.M.
0.1x	96x128x160	2.3x	66x88x110	3.3x	48x64x80	4.5x	36x48x60	6x	27x36x45	7.9x
0.2x	48x64x80	4.6x	33x44x55	6.6x	24x32x40	9x	18x24x30	12x	13.5x18x22.5	15.8x
0.3x	32x42.67x53.33	6.9x	22x29.33x36.67	9.9x	16x21.33x26.67	13.5x	12x16x20	18x	9x12x15	23.7x
0.4x	24x32x40	9.2x	16.5x22x27.5	13.2x	12x16x20	18x	9x12x15	24x	6.75x9x11.25	31.6x
0.5x	19.2x25.6x32	11.5x	13.2x17.6x22	16.5x	9.6x12.8x16	22.5x	7.2x9.6x12	30x	5.4x7.2x9	39.5x
0.6x	16x21.33x26.67	13.8x	11x14.67x18.33	19.8x	8x10.67x13.33	27x	6x8x10	36x	4.5x6x7.5	47.4x
0.7x	13.71x18.29x22.86	16.1x	9.43x12.57x15.71	23.1x	6.86x9.14x11.43	31.5x	5.14x6.86x8.57	42x	3.86x5.14x6.43	55.3x
0.8x	12x16x20	18.4x	8.25x11x13.75	26.4x	6x8x10	36x	4.5x6x7.5	48x	3.38x4.5x5.63	63.2x
0.9x	10.67x14.22x17.78	20.7x	7.33x9.78x12.22	29.7x	5.33x7.11x8.89	40.5x	4x5.33x6.67	54x	3x4x5	71.1x
1x	9.6x12.8x16.0	23x	6.6x8.8x11	33x	4.8x6.4x8.0	45x	3.6x4.8x6.0	60x	2.7x3.6x4.5	79x
2x	4.8x6.4x8.0	46x	3.3x4.4x5.5	66x	2.4x3.2x4.0	90x	1.8x2.4x3.0	120x	1.35x1.8x2.25	158x
3x	3.2x4.27x5.33	69x	2.2x2.93x3.67	99x	1.6x2.3x2.67	135x	1.2x1.6x2.0	180x	0.9x1.2x1.5	237x
4x	2.4x3.2x4.0	92x	1.65x2.2x2.75	132x	1.2x1.6x2.0	18x	0.9x1.2x1.5	240x	0.68x0.9x1.13	316x
5x	1.92x2.56x3.2	115x	1.32x1.76x2.2	165x	0.96x1.28x1.6	225x	0.72x0.96x1.2	300x	0.54x0.72x0.9	395x
6x	1.6x2.13x2.67	138x	1.1x1.47x1.83	198x	0.8x1.07x1.33	27x	0.6x0.8x1.0	360x	0.45x0.6x0.75	474x
7x	1.37x1.83x2.29	161x	0.94x1.26x1.57	231x	0.69x0.91x1.14	315x	0.51x0.69x0.86	420x	0.39x0.51x0.64	553x
8x	1.2x1.6x2.0	184x	0.83x1.1x1.38	264x	0.6x0.8x1.0	36x	0.45x0.6x0.75	480x	0.34x0.45x0.56	632x
9x	1.07x1.42x1.78	207x	0.73x0.98x1.22	297x	0.53x0.71x0.89	405x	0.4x0.53x0.67	540x	0.3x0.4x0.5	711x
10x	0.96x1.28x1.6	230x	0.66x0.88x1.1	330x	0.48x0.64x0.8	450x	0.36x0.48x0.6	600x	0.27x0.36x0.45	790x

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