

Machine Vision



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2/3" 3 Mega Pixel Fixed-focal Lens

Machine Vision Lens

2/3" 3MP up to 4.4 μm Macro

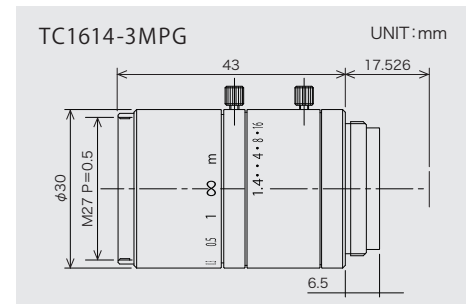
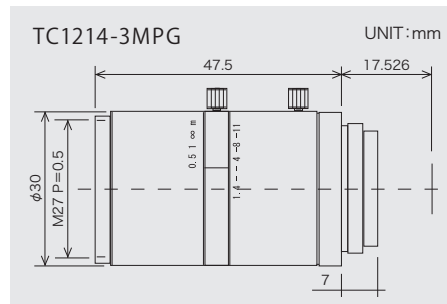
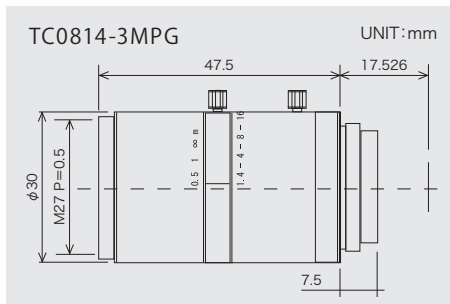
TC0814-3MPG



TC1214-3MPG



TC1614-3MPG



Model Name	TC0814-3MPG	TC1214-3MPG	TC1614-3MPG	
Image Format	2/3"	2/3"	2/3"	
Mount	C	C	C	
Focal Length	8mm	12mm	16mm	
Aperture Range	F1.4 - 16	F1.4 - 16	F1.4 - 16	
Angle Of View (Horizontal x Vertical)	57.3° x 44.3°	39.6° x 30.2°	30.46° x 23.07°	
M.O.D.	0.1m	0.1m	0.1m	
Filter Size	M27mm P=0.5	M27mm P=0.5	M27mm P=0.5	
Back Focal Length	11.14mm	11.7mm	11.75mm	
Dimensions	φ30x47.5mm	φ30x47.5mm	φ30x43mm	
Weight	75g	80g	70g	
Operating Temperature Range	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	
Operating	Iris	Manual with Locking screw	Manual with Locking screw	Manual with Locking screw
	Focus	Manual with Locking screw	Manual with Locking screw	Manual with Locking screw
Note	3Mega Pixel	3Mega Pixel	3Mega Pixel	

Combination with extension tube	Location of focus-ring	TC0814-3MPG			TC1214-3MPG			TC1614-10MP		
		FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification
0.5mm	FAR	109.0x145.3	120.4	0.061	162.5x216.7	285.2	0.041	214.0x285.3	505	0.031
1mm	FAR	54.5x72.7	52.3	0.121	81.2x108.2	133.7	0.081	107.0x142.6	242	0.062
1.5mm (1+0.5)	FAR	36.3x48.4	29.5	0.182	54.1x72.2	83.3	0.122	71.3x95.1	154.4	0.093
5mm	FAR	-	-	-	16.2x21.7	12.7	0.406	21.4x28.5	31.8	0.308
10mm	FAR	-	-	-	-	-	-	10.7x14.3	5.5	0.617
15mm (10+5)	FAR	-	-	-	-	-	-	-	-	-
20mm	FAR	-	-	-	-	-	-	-	-	-
25mm (20+5)	FAR	-	-	-	-	-	-	-	-	-
30mm (20+10)	FAR	-	-	-	-	-	-	-	-	-
35mm (20+10+5)	FAR	-	-	-	-	-	-	-	-	-
40mm	FAR	-	-	-	-	-	-	-	-	-
45mm (40+5)	FAR	-	-	-	-	-	-	-	-	-
50mm (40+10)	FAR	-	-	-	-	-	-	-	-	-

2/3" & 1/1.8" 3 Mega Pixel Fixed-focal Lens

Machine Vision Lens

2/3" & 1/1.8"

3MP

up to 4.4 μm

Compact

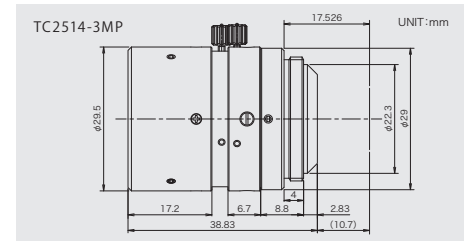
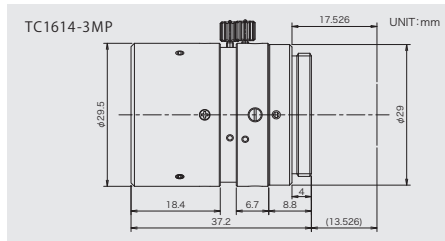
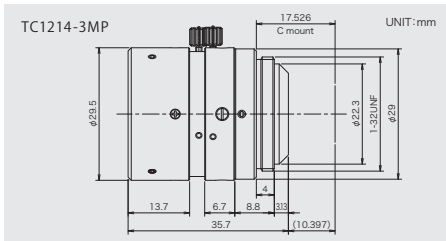
TC1214-3MP



TC1614-3MP



TC2514-3MP



Model Name	TC1214-3MP	TC1614-3MP	TC2514-3MP
Image Format	1/1.8"	2/3"	2/3"
Mount	C	C	C
Focal Length	12mm	16mm	25mm
Aperture Range	F1.4 - 22	F1.4 - 16	F1.4 - 16
Angle Of View (Horizontal x Vertical)	32.38° x 24.58°	30.99° x 23.43°	19.98° x 15.04°
M.O.D.	0.2m	0.25m	0.25m
Filter Size	M27mm P=0.5	M27mm P=0.5	M27mm P=0.5
Back Focal Length	11.46mm	14.59mm	11.52mm
Dimensions	φ29.5x35.7mm	φ29.5x37.2mm	φ29.5x38.9mm
Weight	57g	64g	56g
Operating Temperature Range	-20°C ~ +55°C	-20°C ~ +55°C	-20°C ~ +55°C
Operating	Iris	Manual with Locking screw	Manual with Locking screw
	Focus	Manual with Locking screw	Manual with Locking screw
Note	3Mega Pixel	3Mega Pixel	3Mega Pixel

Combination with extension tube	Location of focus-ring	TC1214-3MP			TC1614-3MP			TC2514-3MP		
		FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification
0.5mm	FAR	134.0x178.5	291	0.040	211.0x282.0	494	0.031	330.0x440.0	1242	0.020
1mm	FAR	67.8x90.1	139	0.080	105.0x141.0	237	0.063	165.0x220.0	616	0.040
1.5mm (1+0.5)	FAR	44.5x59.3	86	0.121	70.4x93.9	153.6	0.094	110.0x147.0	407	0.060
5mm	FAR	13.4x17.8	15.1	0.403	21.1x28.1	34.3	0.313	33.0x44.0	115.1	0.200
10mm	FAR	-	-	-	10.6x14.1	8.8	0.625	16.5x22.0	52.2	0.400
15mm (10+5)	FAR	-	-	-	-	-	-	11.0x14.7	31.7	0.600
20mm	FAR	-	-	-	-	-	-	8.3x11.0	21.3	0.800
25mm (20+5)	FAR	-	-	-	-	-	-	6.6x8.8	15	1.000
30mm (20+10)	FAR	-	-	-	-	-	-	-	-	-
35mm (20+10+5)	FAR	-	-	-	-	-	-	-	-	-
40mm	FAR	-	-	-	-	-	-	-	-	-
45mm (40+5)	FAR	-	-	-	-	-	-	-	-	-
50mm (40+10)	FAR	-	-	-	-	-	-	-	-	-

2/3" 3 Mega Pixel Fixed-focal Lens

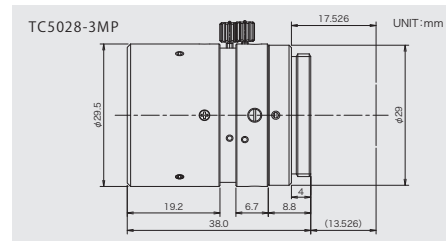
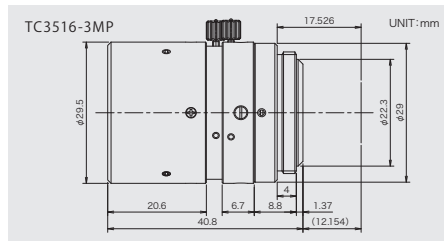
Machine Vision Lens

2/3" 3MP up to 4.4 μm Compact

TC3516-3MP



TC5028-3MP



Model Name	TC3516-3MP	TC5028-3MP	
Image Format	2/3"	2/3"	
Mount	C	C	
Focal Length	35mm	50mm	
Aperture Range	F1.6 - 16	F2.8 - 22	
Angle Of View (Horizontal x Vertical)	14.74°x 11.08°	10.03°x 7.54°	
M.O.D.	0.35m	0.8m	
Filter Size	M27mm P=0.5	M27mm P=0.5	
Back Focal Length	11.88mm	21.06mm	
Dimensions	φ29.5x40.8mm	φ29.5x38.0mm	
Weight	65g	55g	
Operating Temperature Range	-20°C~+55°C	-20°C~+55°C	
Operating	Iris	Manual with Locking screw	Manual with Locking screw
	Focus	Manual with Locking screw	Manual with Locking screw
Note	3Mega Pixel	3Mega Pixel	

Combination with extension tube	Location of focus-ring	TC3516-3MP			TC5028-3MP		
		FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification
0.5mm	FAR	450.0x600.0	2310	0.015	660.0x880.0	5048	0.010
1mm	FAR	223.0x297.0	1140	0.030	330.0x440.0	2547	0.020
1.5mm (1+0.5)	FAR	150.0x199.0	765	0.044	220.0x293.0	1713	0.030
5mm	FAR	44.8x59.7	223	0.147	66.0x88.0	546	0.100
10mm	FAR	22.5x29.9	107.5	0.294	33.0x44.0	296	0.200
15mm (10+5)	FAR	15.0x20.0	68.9	0.441	22.0x29.3	213	0.300
20mm	FAR	11.2x15.0	49.7	0.588	16.5x22.0	170.9	0.400
25mm (20+5)	FAR	9.0x12.0	38.2	0.735	13.2x17.6	145.9	0.500
30mm (20+10)	FAR	7.5x10.0	30.4	0.882	11.0x14.7	129.2	0.600
35mm (20+10+5)	FAR	6.4x8.6	25.4	1.030	9.4x12.6	117.3	0.700
40mm	FAR	-	-	-	8.3x11.0	108.4	0.800
45mm (40+5)	FAR	-	-	-	7.3x9.8	101.4	0.900
50mm (40+10)	FAR	-	-	-	6.6x8.8	95.9	1.000

2/3" 8 Mega Pixel Fixed-focal Lens

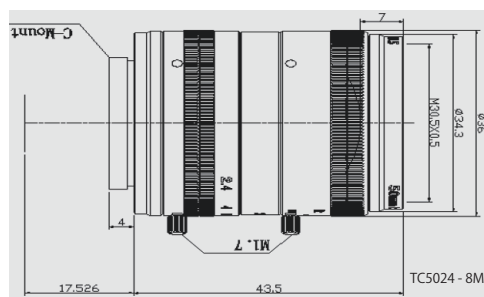
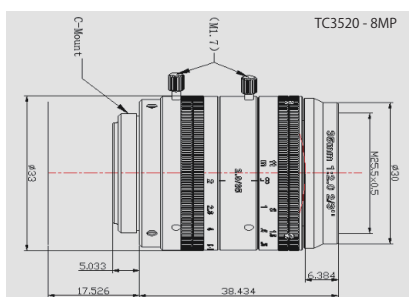
Machine Vision Lens

2/3" 8MP upto 2.74 μm

TC3520-8MP



TC5024-8MP



Model Name	TC3520-8MP	TC5024-8MP	
Image Format	2/3"	2/3"	
Mount	C	C	
Focal Length	35mm	50mm	
Aperture Range	F2.0 - 22	F2.4 - 22	
Angle Of View (Horizontal x Vertical)	11.96° x 9.07°	8.2° x 6.36°	
M.O.D.	0.18m	0.25m	
Filter Size	M25.5mm P=0.5	M30.5mm P=0.5	
Back Focal Length	12.96mm	21.3mm	
Dimensions	φ30×43.47mm	φ36×47.5mm	
Weight	80g	90g	
Operating Temperature Range	-10°C~+50°C	-10°C~+50°C	
Operating	Iris	Manual with Locking screw	Manual with Locking screw
	Focus	Manual with Locking screw	Manual with Locking screw
Note	8Mega Pixel	8Mega Pixel	

Combination with extension tube	Location of focus-ring	TC3520-8MP			TC5024-8MP		
		FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification
0.5mm	FAR	459×612	2500	0.014	645.6×860.9	5000	0.010
1mm	FAR	230.1×306.8	1290	0.029	328.8×438.5	2600	0.020
1.5mm (1+0.5)	FAR	154.5×206.0	890	0.043	219.9×293.3	1775	0.030
5mm	FAR	46.1×61.5	317.1	0.143	66.0×88.0	608.8	0.100
10mm	FAR	23.0×30.7	195.2	0.286	33.0×44.0	358.8	0.200
15mm (10+5)	FAR	15.4×20.5	154.6	0.430	22.0×29.3	275.4	0.300
20mm	FAR	11.5×15.4	134.3	0.573	16.5×22.0	233.8	0.400
25mm (20+5)	FAR	9.2×12.3	122.1	0.716	13.2×17.6	208.8	0.500
30mm (20+10)	FAR	7.7×10.2	113.9	0.860	11.0×14.7	192.1	0.600
35mm (20+10+5)	FAR	6.6×8.8	108.1	1.000	9.43×12.6	180.2	0.700
40mm	FAR	-	-	-	8.25×11.0	171.3	0.800
45mm (40+5)	FAR	-	-	-	7.4×9.9	164.8	0.892
50mm (40+10)	FAR	-	-	-	6.6×8.8	158.8	1.000

2/3" 10 Mega Pixel Fixed-focal Lens

Machine Vision Lens

2/3" 10MP up to 2.4 μm

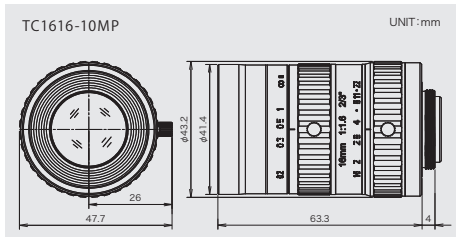
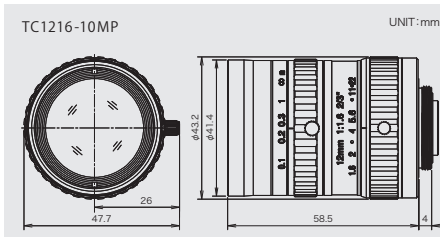
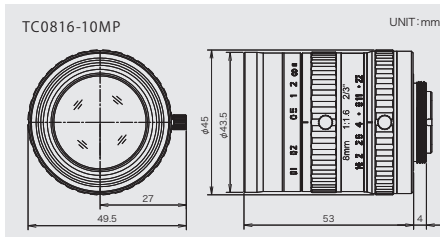
TC0816-10MP



TC1216-10MP



TC1616-10MP



Model Name	TC0816-10MP	TC1216-10MP	TC1616-10MP
Image Format	2/3"	2/3"	2/3"
Mount	C	C	C
Focal Length	8mm	12mm	16mm
Aperture Range	F1.6 - 22	F1.6 - 22	F1.6 - 22
Angle Of View (Horizontal x Vertical)	55.8°x 43.3°	39.8°x 30.4°	30.8°x 23.4°
M.O.D.	0.15m~∞	0.1m~∞	0.2m~∞
Filter Size	M40.5mm P=0.5	M37.5mm P=0.5	M37.5mm P=0.5
Back Focal Length	12.44mm	12.42mm	12.36mm
Dimensions	φ45 x 53mm	φ43.2 x 58.5mm	φ43.2 x 63.3mm
Weight	170g	178g	181g
Operating Temperature Range	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C
Operating	Iris	Manual with Locking screw	Manual with Locking screw
	Focus	Manual with Locking screw	Manual with Locking screw
Note	10Mega Pixel		

Combination with extension tube	Location of focus-ring	TC0816-10MP			TC1216-10MP			TC1616-10MP		
		FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification
0.5mm	FAR	108.3x145.6	115	0.062	159.2x212.9	270	0.042	208.8x278.5	480	0.032
1mm	FAR	55.1x74.5	48	0.123	80.5x107.8	125	0.083	103.5x138.0	225	0.064
1.5mm (1+0.5)	FAR	36.8x50.1	25	0.185	53.4x71.6	75	0.125	70.3x93.9	145	0.094
5mm	FAR	-	-	-	-	-	-	21.1x28.3	26	0.315
10mm	FAR	-	-	-	-	-	-	-	-	-
15mm (10+5)	FAR	-	-	-	-	-	-	-	-	-
20mm	FAR	-	-	-	-	-	-	-	-	-
25mm (20+5)	FAR	-	-	-	-	-	-	-	-	-
30mm (20+10)	FAR	-	-	-	-	-	-	-	-	-
35mm (20+10+5)	FAR	-	-	-	-	-	-	-	-	-
40mm	FAR	-	-	-	-	-	-	-	-	-
45mm (40+5)	FAR	-	-	-	-	-	-	-	-	-
50mm (40+10)	FAR	-	-	-	-	-	-	-	-	-

2/3" 10 Mega Pixel Fixed-focal Lens

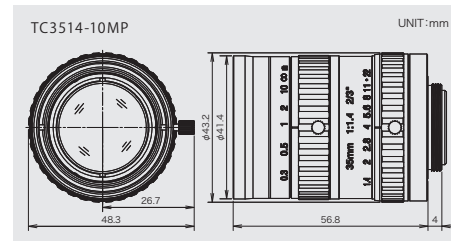
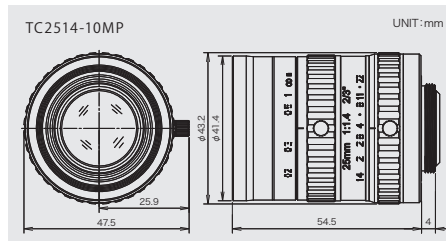
Machine Vision Lens

2/3" 10MP up to 2.4 μm

TC2514-10MP



TC3514-10MP



Model Name		TC2514-10MP	TC3514-10MP
Image Format		2/3"	2/3"
Mount		C	C
Focal Length		25mm	35mm
Aperture Range		F1.4 - 22	F1.4 - 22
Angle Of View (Horizontal x Vertical)		20°x 15°	14.3°x 10.8°
M.O.D.		0.2m~∞	0.3m~∞
Filter Size		M37.5mm P=0.5	M37.5mm P=0.5
Back Focal Length		12.78mm	12.82mm
Dimensions		φ43.2 x 54.5mm	φ43.2 x 56.8mm
Weight		148g	156g
Operating Temperature Range		-10°C~+50°C	-10°C~+50°C
Operating	Iris	Manual with Locking screw	Manual with Locking screw
	Focus	Manual with Locking screw	Manual with Locking screw
Note		10Mega Pixel	10Mega Pixel

Combination with extension tube	Location of focus-ring	TC2514-10MP			TC3514-10MP		
		FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification
0.5mm	FAR	321.9x429.6	1200	0.021	455.3x607.3	2400	0.015
1mm	FAR	162.5x216.8	595	0.041	229.0x305.4	1200	0.029
1.5mm (1+0.5)	FAR	108.4x144.7	390	0.061	153.5x204.8	800	0.043
5mm	FAR	32.8x43.8	103	0.202	46.0x61.4	230	0.144
10mm	FAR	16.5x22.0	41.5	0.401	23.0x30.7	108	0.288
15mm (10+5)	FAR	11.1x14.7	21	0.598	15.4x20.5	68	0.429
20mm	FAR	-	-	-	11.5x15.4	47.5	0.572
25mm (20+5)	FAR	-	-	-	-	-	-
30mm (20+10)	FAR	-	-	-	-	-	-
35mm (20+10+5)	FAR	-	-	-	-	-	-
40mm	FAR	-	-	-	-	-	-
45mm (40+5)	FAR	-	-	-	-	-	-
50mm (40+10)	FAR	-	-	-	-	-	-

1" 5 Mega Pixel Fixed-focal Lens

Machine Vision Lens

1"

5MP

up to 5.0 μm

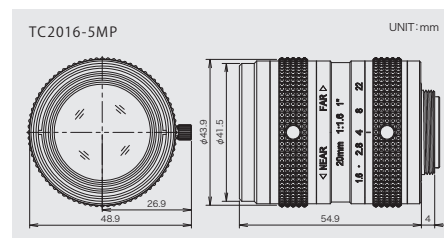
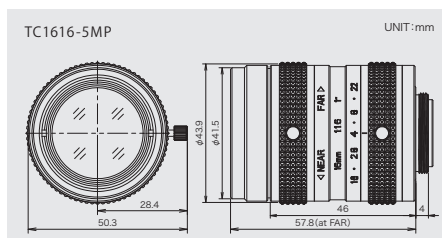
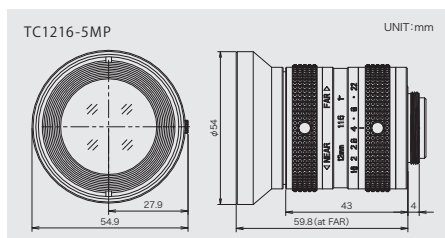
TC1216-5MP



TC1616-5MP



TC2016-5MP



Model Name	TC1216-5MP	TC1616-5MP	TC2016-5MP
Image Format	1"	1"	1"
Mount	C	C	C
Focal Length	12mm	16mm	20mm
Aperture Range	F1.6 - 22	F1.6 - 22	F1.6 - 22
Angle Of View (Horizontal x Vertical)	57.1°x 44.1°	44.2°x 33.5°	36.1°x 27.2°
M.O.D.	0.2m~∞	0.35m~∞	0.45m~∞
Filter Size	M52mm P=0.75	M37.5mm P=0.5	M39mm P=0.5
Back Focal Length	13.54mm	12.17mm	12.19mm
Dimensions	φ54 x 60.4mm	φ43.9 x 57.8mm	φ43.9 x 54.95mm
Weight	185g	201g	163g
Operating Temperature Range	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C
Operating	Iris	Manual with Locking screw	Manual with Locking screw
	Focus	Manual with Locking screw	Manual with Locking screw
Note	5Mega Pixel	5Mega Pixel	5Mega Pixel

Combination with extension tube	Location of focus-ring	TC1216-5MP			TC1616-5MP			TC2016-5MP		
		FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification
0.5mm	FAR	229.1x309.2	260	0.043	312.1x421.1	500	0.031	377.6x508.0	760	0.026
1mm	FAR	115.9x157.0	120	0.085	155.4x209.9	240	0.063	190.9x257.0	375	0.051
1.5mm (1+0.5)	FAR	77.2x104.8	72	0.128	104.1x140.7	155	0.094	127.8x172.2	245	0.076
5mm	FAR	-	-	-	31.7x42.9	35	0.309	38.9x52.5	62	0.251
10mm	FAR	-	-	-	-	-	-	19.4x26.2	22	0.503
15mm (10+5)	FAR	-	-	-	-	-	-	-	-	-
20mm	FAR	-	-	-	-	-	-	-	-	-
25mm (20+5)	FAR	-	-	-	-	-	-	-	-	-
30mm (20+10)	FAR	-	-	-	-	-	-	-	-	-
35mm (20+10+5)	FAR	-	-	-	-	-	-	-	-	-
40mm	FAR	-	-	-	-	-	-	-	-	-
45mm (40+5)	FAR	-	-	-	-	-	-	-	-	-
50mm (40+10)	FAR	-	-	-	-	-	-	-	-	-

1" 5 Mega Pixel Fixed-focal Lens

Machine Vision Lens

1"

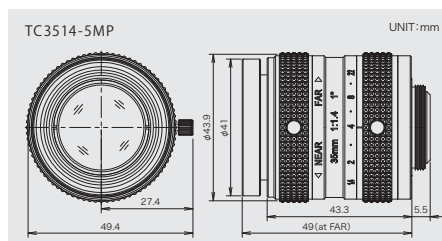
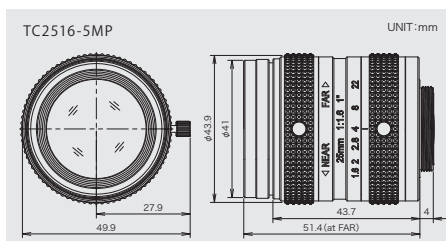
5MP

up to 5.0μm

TC2516-5MP



TC3514-5MP



Model Name	TC2516-5MP	TC3514-5MP	
Image Format	1"	1"	
Mount	C	C	
Focal Length	25mm	35mm	
Aperture Range	F1.6 - 22	F1.4 - 22	
Angle Of View (Horizontal x Vertical)	29.0°x 21.8°	20.7°x 15.6°	
M.O.D.	0.45m~∞	0.45m~∞	
Filter Size	M39mm P=0.5	M39mm P=0.5	
Back Focal Length	12.69mm	12.83mm	
Dimensions	φ43.9 x 51.38mm	φ43.9 x 48.96mm	
Weight	157g	154g	
Operating Temperature Range	-10°C~+50°C	-10°C~+50°C	
Operating	Iris	Manual with Locking screw	Manual with Locking screw
	Focus	Manual with Locking screw	Manual with Locking screw
Note	5Mega Pixel	5Mega Pixel	

Combination with extension tube	Location of focus-ring	TC2516-5MP			TC3514-5MP		
		FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification
0.5mm	FAR	470.8x631.9	1200	0.021	660.4x880.3	2400	0.015
1mm	FAR	239.0x321.0	600	0.041	331.2x441.5	1200	0.029
1.5mm (1+0.5)	FAR	158.0x212.2	390	0.061	221.4x295.2	800	0.043
5mm	FAR	48.2x64.9	106	0.202	66.4x88.6	235	0.145
10mm	FAR	24.1x32.5	44	0.404	33.5x44.8	116	0.287
15mm (10+5)	FAR	-	-	-	22.3x29.7	75	0.432
20mm	FAR	-	-	-	-	-	-
25mm (20+5)	FAR	-	-	-	-	-	-
30mm (20+10)	FAR	-	-	-	-	-	-
35mm (20+10+5)	FAR	-	-	-	-	-	-
40mm	FAR	-	-	-	-	-	-
45mm (40+5)	FAR	-	-	-	-	-	-
50mm (40+10)	FAR	-	-	-	-	-	-

1" 10 Mega Pixel Fixed-focal Lens

Machine Vision Lens

1"

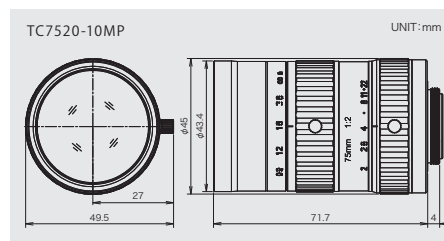
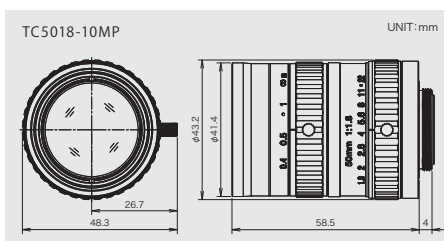
10MP

up to 3.4 μm

TC5018-10MP



TC7520-10MP



Model Name	TC5018-10MP	TC7520-10MP	
Image Format	1"	1"	
Mount	C	C	
Focal Length	50mm	75mm	
Aperture Range	F1.8 - 22	F2.0 - 22	
Angle Of View (Horizontal x Vertical)	14.5° x 10.8°	9.7° x 7.3°	
M.O.D.	0.4m ~ ∞	0.9m ~ ∞	
Filter Size	M37.5mm P=0.5	M40.5mm P=0.5	
Back Focal Length	13.63mm	13.76mm	
Dimensions	Φ43.2 x 58.5mm	Φ45 x 71.7mm	
Weight	173g	223g	
Operating Temperature Range	-10°C ~ +50°C	-10°C ~ +50°C	
Operating	Iris	Manual with Locking screw	Manual with Locking screw
	Focus	Manual with Locking screw	Manual with Locking screw
Note	10Mega Pixel	10Mega Pixel	

Combination with extension tube	Location of focus-ring	TC5018-10MP			TC7520-10MP		
		FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification
0.5mm	FAR	646.9x862.5	4900	0.010	981.6x1309.0	11200	0.007
1mm	FAR	323.4x431.3	2450	0.020	489.0x652.1	5600	0.014
1.5mm (1+0.5)	FAR	217.8x290.4	1650	0.030	326.2x435.1	3750	0.020
5mm	FAR	65.9x87.9	500	0.100	98.2x131.1	1160	0.067
10mm	FAR	32.9x43.9	250	0.201	49.4x65.9	605	0.134
15mm (10+5)	FAR	21.9x29.3	167	0.302	33.0x44.2	420	0.201
20mm	FAR	16.5x22.0	126	0.401	24.9x33.0	325	0.269
25mm (20+5)	FAR	13.2x17.6	101	0.502	19.8x26.5	270	0.335
30mm (20+10)	FAR	-	-	-	-	-	-
35mm (20+10+5)	FAR	-	-	-	-	-	-
40mm	FAR	-	-	-	-	-	-
45mm (40+5)	FAR	-	-	-	-	-	-
50mm (40+10)	FAR	-	-	-	-	-	-

Design and Specification are subject to change without notice.

4/3" 12 Mega Pixel Fixed-focal Lens

Machine Vision Lens

4/3" 12MP up to 4.7 μm

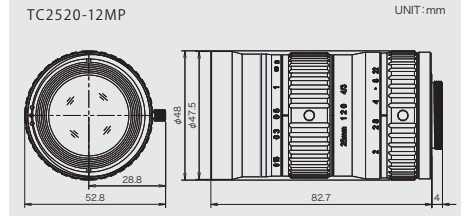
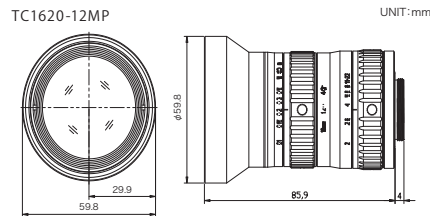
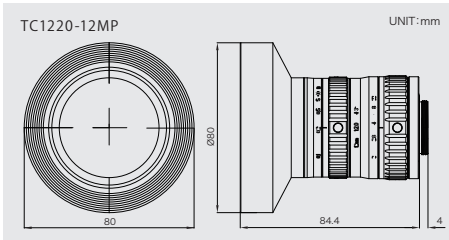
NEW TC1220-12MP



NEW TC1620-12MP



TC2520-12MP



Model Name	TC1220-12MP	TC1620-12MP	TC2520-12MP	
Image Format	4/3"	4/3"	4/3"	
Mount	C	C	C	
Focal Length	12mm	16mm	25mm	
Aperture Range	F2.0-22	F2.0 - 22	F2.0 - 22	
Angle Of View (Horizontal x Vertical)	75.46°x61.08°	60.92° x 47.28°	40.6°x 31°	
M.O.D.	0.15m~∞	0.1m~∞	0.15m~∞	
Filter Size	M77mm P=0.75	M58mm P=0.75	M46mm P=0.75	
Back Focal Length	18.93mm	21.00mm	22.43mm	
Dimensions	φ80x84.4mm	φ59.8 x 85.9mm	φ48 x 82.7mm	
Weight	447g	338g	250g	
Operating Temperature Range	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	
Operating	Iris	Manual with Locking screw	Manual with Locking screw	Manual with Locking screw
	Focus	Manual with Locking screw	Manual with Locking screw	Manual with Locking screw
Note	12Mega Pixel	12Mega Pixel	12Mega Pixel	

Combination with extension tube	Location of focus-ring	TC1220-12MP			TC1620-12MP			TC2520-12MP		
		FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification
0.5mm	FAR	339.2x457.2	260	0.042	441.7x594.7	480	0.032	676.6x903.8	1200	0.021
1mm	FAR	168.2x228.0	115	0.085	222.8x300.5	230	0.063	343.9x459.4	600	0.040
1.5mm (1+0.5)	FAR	112.7x153.5	68	0.127	148.4x200.5	145	0.095	232.9x311.2	400	0.060
5mm	FAR	-	-	-	45.4x61.9	27.5	0.314	69.5x92.9	105	0.200
10mm	FAR	-	-	-	-	-	-	34.6x46.3	42	0.402
15mm (10+5)	FAR	-	-	-	-	-	-	23.2x31.0	21.5	0.600
20mm	FAR	-	-	-	-	-	-	-	-	-
25mm (20+5)	FAR	-	-	-	-	-	-	-	-	-
30mm (20+10)	FAR	-	-	-	-	-	-	-	-	-
35mm (20+10+5)	FAR	-	-	-	-	-	-	-	-	-
40mm	FAR	-	-	-	-	-	-	-	-	-
45mm (40+5)	FAR	-	-	-	-	-	-	-	-	-
50mm (40+10)	FAR	-	-	-	-	-	-	-	-	-

4/3" 12 Mega Pixel Fixed-focal Lens

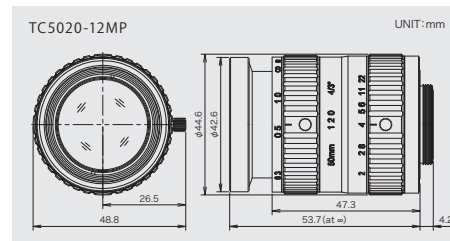
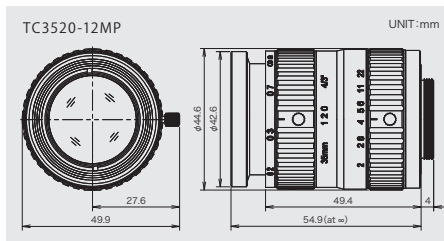
Machine Vision Lens

1" 12MP up to 4.7 μm

TC3520-12MP



TC5020-10MP



Model Name	TC3520-12MP	TC5020-12MP	
Image Format	4/3"	4/3"	
Mount	C	C	
Focal Length	35mm	50mm	
Aperture Range	F2.0 - 22	F2.0 - 22	
Angle Of View (Horizontal x Vertical)	29.6°x 22.4°	20.9°x 15.7°	
M.O.D.	0.2m~∞	0.3m~∞	
Filter Size	M40.5mm P=0.5	M40.5mm P=0.5	
Back Focal Length	18.65mm	20.29mm	
Dimensions	Φ44.6 x 54.9mm	Φ44.6 x 53.7mm	
Weight	173g	170g	
Operating Temperature Range	-10°C~+50°C	-10°C~+50°C	
Operating	Iris	Manual with Locking screw	Manual with Locking screw
	Focus	Manual with Locking screw	Manual with Locking screw
Note	12Mega Pixel	12Mega Pixel	

Combination with extension tube	Location of focus-ring	TC3520-12MP			TC5020-12MP		
		FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification
0.5mm	FAR	969.7x1295.1	2450	0.014	1374.8x1834.1	5000	0.010
1mm	FAR	482.7x644.7	1220	0.029	684.5x913.3	2500	0.020
1.5mm (1+0.5)	FAR	320.4x428.0	810	0.043	455.4x607.6	1670	0.030
5mm	FAR	96.6x129.0	245	0.144	136.4x182.1	515	0.102
10mm	FAR	48.3x64.5	123	0.287	68.6x91.7	270	0.202
15mm (10+5)	FAR	32.1x42.9	82	0.432	45.9x61.3	188	0.302
20mm	FAR	24.1x32.2	62	0.574	34.5x46.1	147	0.401
25mm (20+5)	FAR	-	-	-	27.6x36.8	122	0.502
30mm (20+10)	FAR	-	-	-	-	-	-
35mm (20+10+5)	FAR	-	-	-	-	-	-
40mm	FAR	-	-	-	-	-	-
45mm (40+5)	FAR	-	-	-	-	-	-
50mm (40+10)	FAR	-	-	-	-	-	-

Design and Specification are subject to change without notice.

Φ45mm, Φ43mm F-mount Line Scan Lens

Line Scan Lens

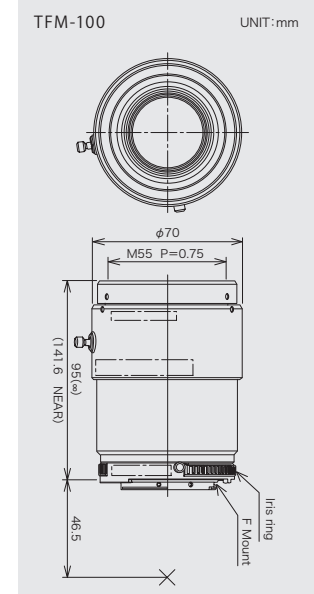
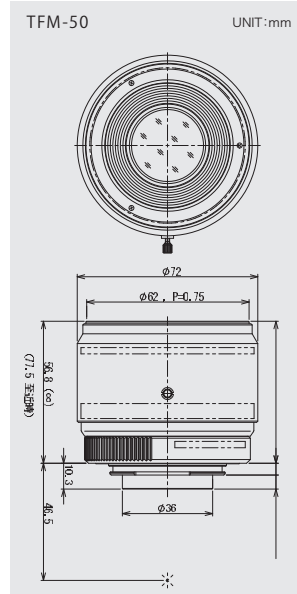
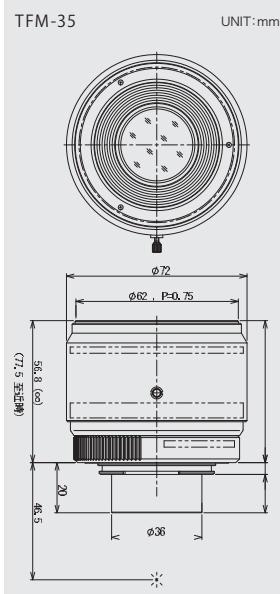
TFM-35



TFM-50



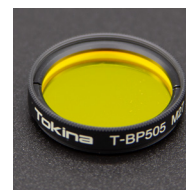
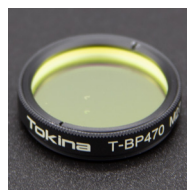
TFM-100


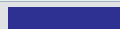
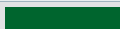


Model Name	TFM-35	TFM-50	TFM-100
Image Format	φ45mm	φ45mm	φ43mm
Mount	F	F	F
Focal Length	35mm	50mm	100mm
Aperture Range	F2.8-22	F2.8-22	F2.8 - 32
Angle Of View (Horizontal x Vertical)	64.4°	47.6°	24.5
M.O.D.	0.19m	0.25m	0.3m
Filter Size	M62mm P=0.75	M62mm P=0.75	M55mm P=0.75
Back Focal Length	33.22mm	36.99mm	44.18mm
Dimensions	φ72×56.8mm	φ72×56.8mm	φ70 x 95.0mm
Weight	380g	370g	514g
Operating Temperature Range	-20°C~+50°C	-20°C~+50°C	-20°C~+50°C
Operating	Iris	Manual	Manual
	Focus	Manual	Manual




Filters for Machine Vision

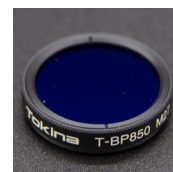
Technical Specifications






Model Name	T-BP324	T-BP470	T-BP505
Transmitting DWL (nm)	290-365	425-495	480-550
Transmittance \geq %	85	85	90
Center Wavelength (nm \pm 10)	324	470	505
Half Bandwidth (nm \pm 10)	105	85	90
Glass Thickness (mm)	1.5	4	2.8
Filter Color			



Model Name	T-BP525	T-BP550	T-BP590
Transmitting DWL (nm)	500-550	410-690	560-600
Transmittance \geq %	90	90	90
Center Wavelength (nm \pm 10)	525	550	590
Half Bandwidth (nm \pm 10)	80	300	70
Glass Thickness (mm)	4	2.2	2.8
Filter Color			



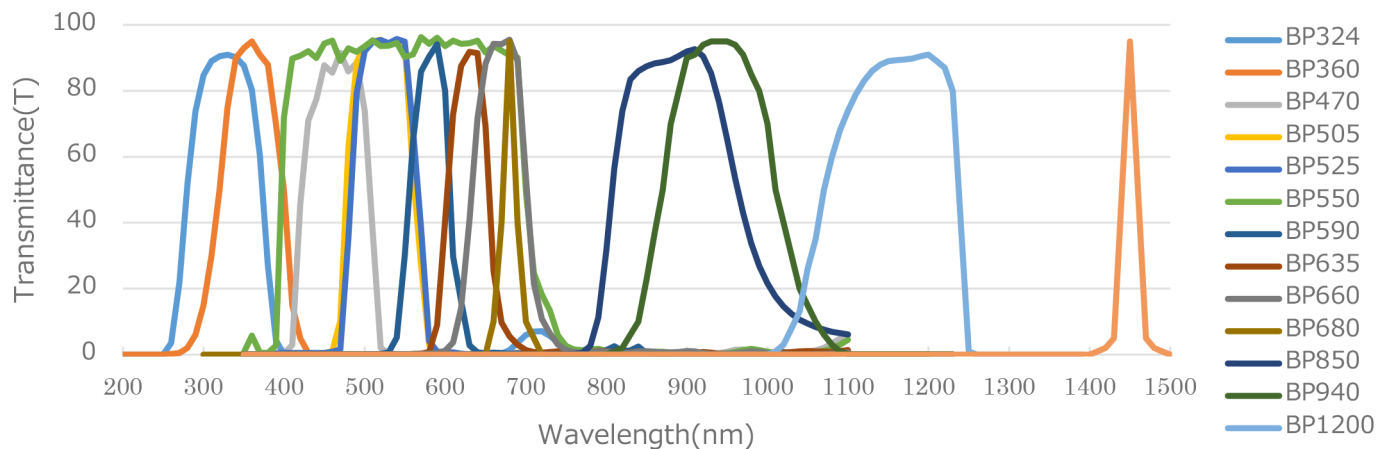
Model Name	T-BP635	T-BP660	T-BP850
Transmitting DWL (nm)	615-645	640-680	820-910
Transmittance \geq %	90	90	90
Center Wavelength (nm \pm 10)	635	660	850
Half Bandwidth (nm \pm 10)	60	65	160
Glass Thickness (mm)	4	2.8	4
Filter Color			



Filters for Machine Vision

Technical Specifications

Spectral Transmittance



Available Sizes (with round filter frame)*

Sizes(mm)	M22.5	M24	M25.5	M27	M30.5	M34	M35.5	M37
	M40.5	M43	M46	M49	M52	M55	M58	M62

*Other shapes (e.g. square) also available

Custom-order

Custom-order is also available according to your reques. KENKO TOKINA prepares Bandpass and Polarizing Filters for Machine Vision / Industrial application. Please, contact us for more details.

Bandpass Filter Kit for Machine Vision: TMF-27SBP

Product Overview:

- Filter Kit with convenience and high cost efficiency, manufacture with extensive know-how by the pioneer of optical filters.
- 10 pcs of most popular filters used for machine vision and industrial use.
- Accessory: portable pouch.

Contents:

- Bandpass filters (M27) 9 pcs
- T-PL: linear polarization/rotator (M27) 1 pc
- Step-up ring: 25.5 to 27.0 1 pc
- Step-down ring: 35.5 to 27.0 1 pc



Working Distance for Close-up Application

Working Distance is calculated by the relation of Object, Lens and Image Sensor as shown below.

■ Calculation of Working Distance

$$W.D. = O/I - (d + f \cdot m) \quad \dots\dots ①$$

① m(magnification) and O/I(distance of object and image sensor) is calculated by the following.

To obtain m (magnification)

$$m = y / Y' = (\text{image sensor size}) / (\text{size of object}) \quad \dots\dots ②$$

To obtain distance of object and image plane

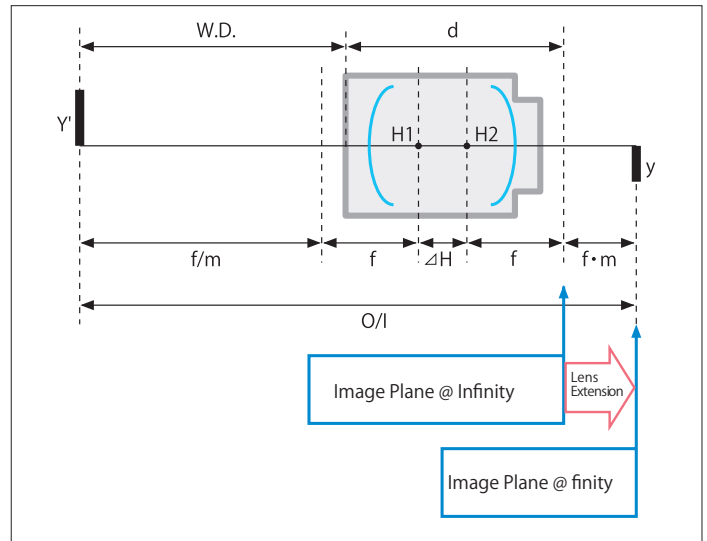
Inputting magnification obtained by ② and lens'optical data into formula ③

$$O/I = f / m + f + \Delta H + f \cdot m \quad \dots\dots ③$$

f : Actual Focal Length

ΔH : Interval of Principle Points

m: magification



Working Distance is obtained by inputting the values of ② and ③ into formula ①

■ Structure of lens extension and Extension Rings

For Close-Up application, when the Object (Y') is coming closer to the Lens, Image (y) is formed away from the Lens in proportion to the magnification. When the positions of Lens and Image Sensor stay, Image (y) is formed behind the Image Sensor, and the actual image will be out of focus. Therefore, using lens' extension structure, adjusting to have Image (y) formed on the Image Sensor by extending the interval between Lens and Image Sensor.

$$\text{Amount of extension} = f \cdot m$$

As the amount of extension by the structure of the Lens is limited, Extension Rings are used together to support and adjust to have Image (y) formed on the Image Sensor.

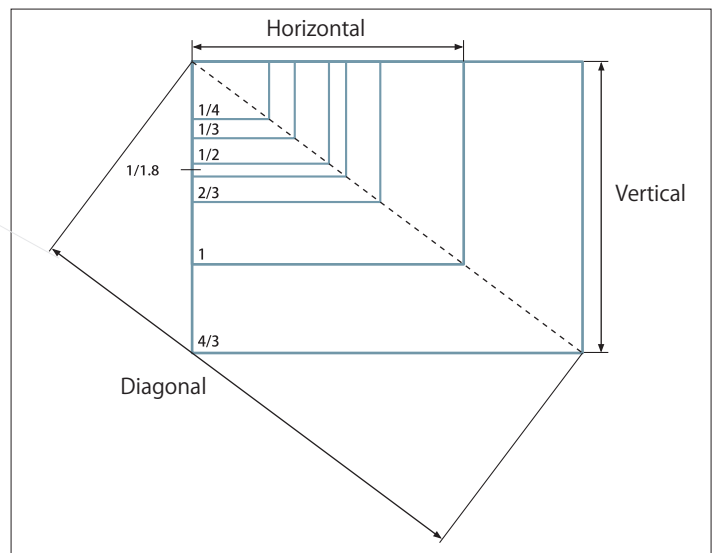
Optical Data

Product Code	f (focal length)	ΔH (Interval of Principle points)	H1 (Primary Principle Point)	H2 (Secondary Principle Point)	d (Length)	f b (Backfocus)	max. extension amount
TC1214-3MP	12.4	5.36	-17.7	-12.4	46.1	11.46	1.5
TC1614-3MP	16.0	1.96	-17.9	-16.0	50.7	14.59	1.5
TC2514-3MP	25.0	-10.57	-14.5	-25.0	49.5	11.52	3.5
TC3516-3MP	34.0	-23.15	-10.9	-34.0	53.0	11.88	3.5
TC5028-3MP	50.0	-2.66	-47.4	-50.0	51.5	21.06	3.5

- (minus): the direction from Image Plane to Object

■ Size of Area Sensor

Image Size	Vertical	Horizontal	Diagonal
4/3"	13.8	18.4	23
1"	9.6	12.8	16
2/3"	6.6	8.8	11
1/1.8"	5.4	7.2	9
1/2"	4.8	6.4	8
1/3"	3.6	4.8	6



For Your Notes

Kenko Tokina Co., Ltd.
KT Nakano Building, 5-68-10 Nakano
Nakano-ku, Tokyo 164-8616 JAPAN

Head office:

Tel +81-3-6840-3024 Fax +81-3-6840-2918

E-mail: cctv@kenko-tokina.co.jp

EMEA office:

Tel +49-4102-224-9925 Fax +49-4102-224-9647

E-mail: info@kenkotokina-cctv.com

<http://www.kenkotokina-cctv.com>

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