

Line Scan Lens for Line & Large Format Sensors



With the increasing number of line scan and large format applications, we have continued to expand our product offering beyond the compact telecentric lenses that have become an industry standard for area scan applications. We offer an assorted range of lens solutions designed for large format high resolution line and area scan cameras used for Glass, Web, TFT inspection and other applications which call for a high performance and low distortion lens. Our models support line image sensors from 2k to 12k with models compatible up to 90 mm wide and a pixel pitch of down to 5 μm .

Image Format

- < 90 mm Up to 90mm
- < 82 mm Up to 82mm
- < 62 mm Up to 62mm
- < 58 mm Up to 58mm
- < 35 mm Up to 35mm

Compatible Camera Pixel

- 5 μm 5 μm /Pixel
- 7 μm 7 μm /Pixel
- 10 μm 10 μm /Pixel

< 82mm 10μm

NEW Line Scan Lens for 3 Color Line Sensor

ML-F80C-0205

Designed to address the challenges of color line scan applications, this new low-magnification line scan lens features RGB chromatic aberration correction to provide excellent performance for line sensors up to 82mm. By utilizing flange focal distance magnification control, magnifications of 0.2X – 0.5X are achievable over varying working distances without the added cost of a complex zoom system.

Although this lens can be used for a wide-range of monochrome line sensor applications, the minimization of axial chromatic aberration and chromatic aberration of magnification make it ideal for high end LCD glass inspection, patterned wafer inspection, and web printing applications that call for a high performance, low distortion lens with minimal peripheral brightness fall-off for use with a 3 CCD color sensor.

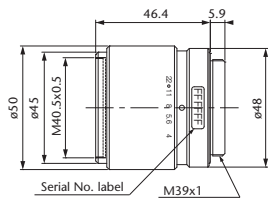


Line Scan Lens for 3 Color Line Sensor

ML-F80C-0205

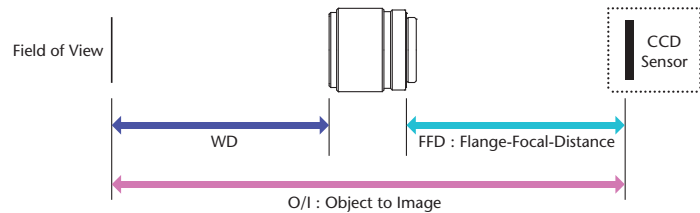
- Magnification adjustable 0.2 to 0.5x with flange focal distance adjustment
- Designed with RGB chromatic correction
- Maximum applicable sensor size: 82mm
- Variable iris

ML-F80C-0205



Magnification Range

Magnification control between 0.2x and 0.5x can be done by adjusting the flange focal distance.



Specifications at Different Magnifications

Magnification	WD (mm)	Field of View* ø (mm)	O/I (mm)	FFD (mm)
0.20x	476.83	410	601.75	78.56
0.25x	392.27	328	521.42	82.79
0.30x	335.9	273.33	469.28	87.02
0.35x	295.64	234.29	433.25	91.25
0.40x	265.44	205	407.27	95.47
0.45x	241.95	182.22	388.02	99.7
0.50x	223.16	164	373.45	103.93

Formulas for calculating the magnification and WD of the ML-F80-0205

$$WD = (1 + M) f / M - A$$

$$FFD = (1 + M) f - B$$

f=84.55
A=30.50
B=22.90

*FOV for 62mm sensor in use

Model	Focal Distance	Magnification	WD	Effective F No	Optical Distortion	Weight	Image Format	Mount	Product Code
ML-F80C-0205	84.55mm	0.2x ~ 0.5x	476.83mm~223.16mm	4~22	0.2%	186g	82mm	M39 x1	A-3180

* Mount adaptor is available on request. (i.e. BTO)

< 62 mm 7 μm

Line Scan Lens for 62mm Sensor

ML-L00502

This new low-magnification model ML-L series is suitable for a wide range of applications with its adjusted magnification of 0.05 to 0.2x and WD of 420 to 1,590 mm. It can be used with image sensors of up to ø62 mm and was designed for image processing that requires peripheral light volume ratio of 80% or more with optical distortion of 0.1% or less. The lens comes standard with a M72-FB31.8mm camera mount and optional mounting adapters such as M72-6.56/19.55 & TFL2 are available. Mounts for large format area scan cameras can also be provided.

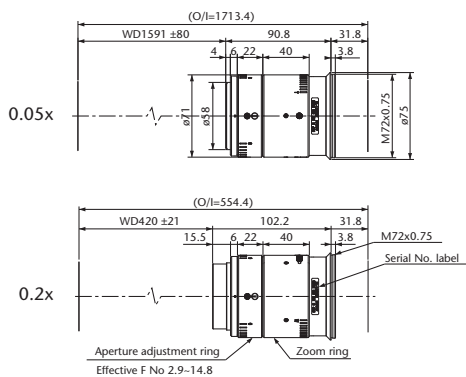


- 0.05 to 0.2x magnification
- WD from 1590 to 420mm
- Supports 62mm sensors
- F2.9
- High uniformity >80%
- Low distortion, <0.1%
- Variable iris

Line Scan Lenses for 62mm Sensor

ML-L00502

ML-L00502



Model	Focal Distance	Magnification	WD	Effective F No	Optical Distortion	Weight	Image Format	Mount	Product Code
ML-L00502	78mm	0.05x ~ 0.2x	1590mm ~ 420mm	2.9~16.5	0.1%	-	62mm	M72 FB31.8	A-3164

< 58 mm 7 μm

Line Scan Lenses for 57mm Sensor

ML-L02035/03505

Line Scan Lenses for 57mm Sensor

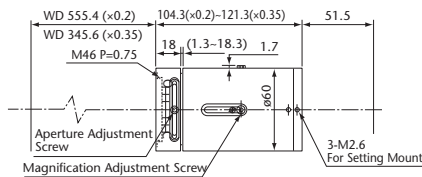
ML-L02035/03505

These are high performance lenses for use with 8,000 pixel Line Scan CCDs with element length of 57.3mm. Flexibility is provided by the variable magnification and focus adjustment included. Outstanding performance is achieved by minimizing the chromatic aberration and distortion.

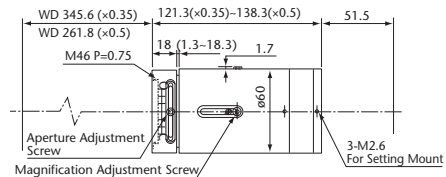


- Advanced optical design for maximum 8000-bit (57.3mm)
- Advanced optical design for 1" mega pixel (2 million pixels~) area CCD
- Designed with variable magnification (0.2x~0.35x or 0.35x~0.5x)
- Low chromatic aberration and low distortion
- Designed for various mountings

ML-L02035



ML-L03505



Model	Focal Distance	Magnification	WD	Effective F No	Optical Distortion	Weight	Image Format	Mount	Product Code
ML-L02035	100mm~101.6mm	0x2 ~ 0.35x	555.4mm ~ 345.6mm	5.8~36.6	0.1%	750g	58mm	Mount Adapter MT-S	A-0184
ML-L03505	101.6mm~103mm	035 x~ 0.5x	345.6mm ~ 261.7mm	6.6~41	0.1%	800g	58mm	Mount Adapter MT-S	A-0185



Line Scan Lenses for 35mm Sensor

ML-L Series

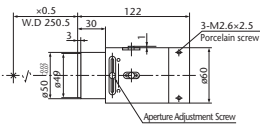


Line Scan Lenses for 35mm Sensor

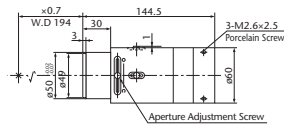
ML-L

- Optimal for high speed processing of large fields of view.
- Low optical distortion, all models less than 0.1%
- Low marginal rays difference
- High resolution, high contrast
- Suitable for long working distance applications

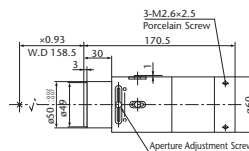
ML-L05



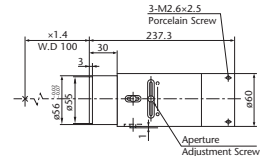
ML-L07



ML-L09

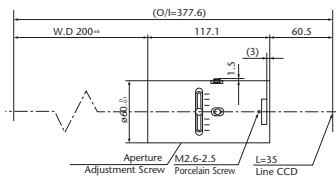


ML-L14



ML-L047-200

Made-to-order



Model	Focal Distance	Magnification	WD	Effective F No	Optical Distortion	Weight	Image Format	Mount	Product Code
ML-L05	102mm	0.5x	250.5mm	5.9 - 28	0.1%	700g	35mm	Mount Adapter MT	A-0179
ML-L07	103mm	0.7x	194mm	6.7 - 32	0.1%	800g	35mm	Mount Adapter MT	A-0180
ML-L09	104mm	0.933x	158.5mm	7.7 - 37	0.1%	800g	35mm	Mount Adapter MT	A-0181
ML-L14	103mm	1.4x	100mm	9.5 - 45	0.1%	800g	35mm	Mount Adapter MT	A-0182
ML-L047-200	95mm	0.47x	200mm	5.9 - 32	0.01%	720g	35mm	Mount Adapter MT	A-0183

* Depth of field is calculated based on resolution.

* Resolution values indicate the theoretical resolution at a wavelength of 550nm.

Camera Mount (Optional)

Reference Chart for Line Scan Lens Selection

	Image Format / Pixel Size				Mount						
	35mm/7μm	58.4mm/7μm	61.4mm/5μm	82mm/10μm Color	C-mount	F-mount	M72			TFL2	M39
							DALSA Piranha2	DALSA Piranha3	NED		
ML-F80C-0205	○	○	○	○	○ *1	○ *1	○ *1	○ *1	○ *1	○ *1	○ *2
ML-L12K5A Series	○	○	○	×	○ *1	○	○	○	○	×	×
ML-L00502	○	○	○	×	○ *1	×	○	○	○ *2	○	×
ML-L02035/03505	○	○	△ *3	×	○	○	○	△ *3	×	×	×
ML-L Series	○	×	×	×	○	○	×	×	×	×	×

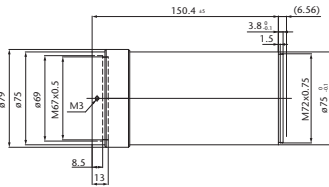
*1 Mount adaptor is available on request. (i.e. BTO)

*2 Directly mountable as standard.

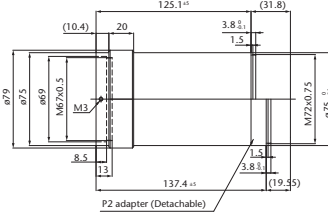
*3 Optional camera mounts available, but the imaging area may be affected by relatively small image circle of the lens.

For ML-L12K5A

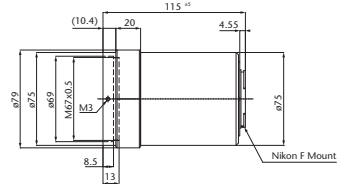
12K5-M72-6.56



12K5-M72-31.8/19.55



12K5-FMT

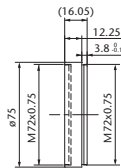


Model	12K5-M72-6.56	12K5-M72-31.8/19.55	12K5-FMT ★
Mount Name	DALSA Piranha3 Mount	NED Mount/DALSA Piranha 2 Mount	Nikon F Mount
Product code	A-3154	A-3155	A-3160

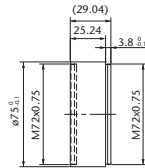
★Made-to-order

For ML-L00502

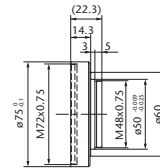
L00502-M72-19.55



L00502-M72-6.56

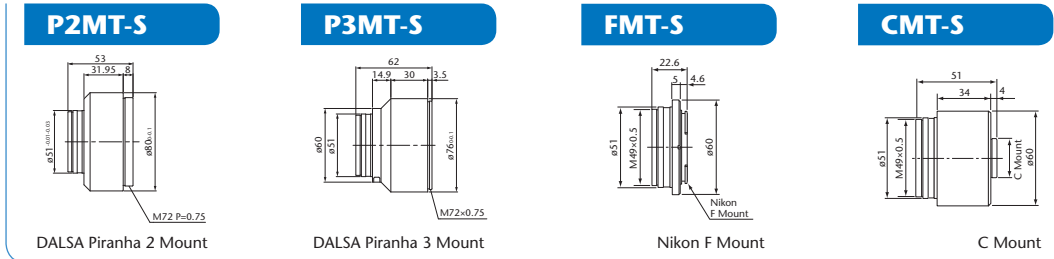


L00502-TFL2



Model	L00502-M72-19.55	L00502-M72-6.56	L00502-TFL2
Mount Name	DALSA Piranha 2 Mount	DALSA Piranha3 Mount	TFL2 Mount
Product code	A-3168	A-3169	A-3170

For ML-L02035/03505

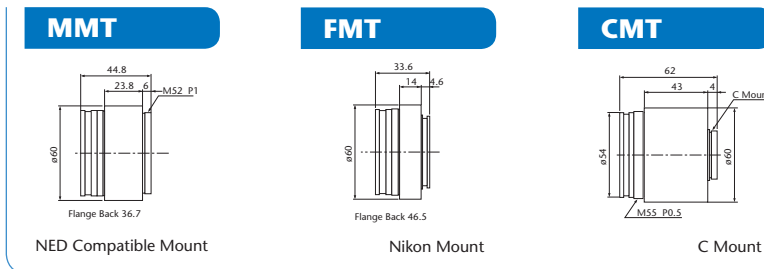


*MORITEX can also provide mounts from various other manufacturers.

Model	P2MT-S ★	P3MT-S ★	FMT-S	CMT-S
Mount Name	DALSA Piranha 2 Mount	DALSA Piranha 3 Mount	Nikon F Mount	C Mount
Product code	A-0195	A-0196	A-0193	A-0194

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For ML-L Series



Model	MMT	FMT	CMT
Mount Name	NED Compatible Mount	Nikon Mount	C Mount
Product code	A-0191	A-0189	A-0192

Camera mount adapter