

Mega-Pixel Machine Vision / FA Lens Series

High Performance Fixed-Focal Lenses for Mega-Pixel Cameras



These high performance image processing lenses for Machine Vision and FA (Factory Automation) applications requiring outstanding optical quality deliver enhanced performance not only in the center but also in the periphery.

/// High performance

/// Distortion is minimized

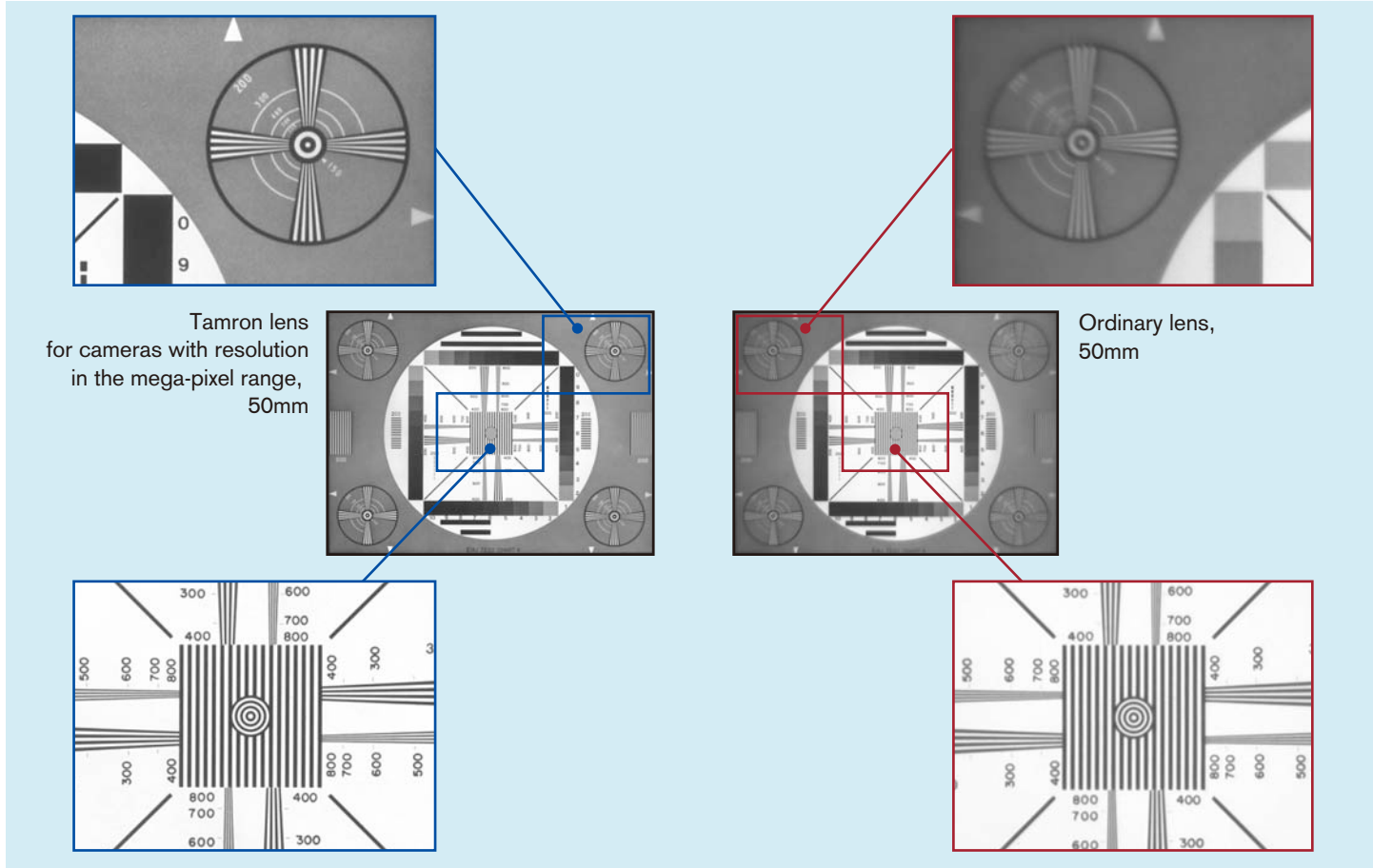
/// Enhanced performance in the close-focus range

/// Compact Design

Boasting state-of-the-art technologies packed into a compact chassis, Tamron's Mega-Pixel Machine Vision / FA Lens Series provide outstanding optical quality and enhanced performance in close-focus situations and meet the needs of diverse image processing applications.

High performance includes improvements in the close-focus range

Tamron has dramatically improved performance in the close-focus range to enhance usability in various environments. Thanks to the reduced minimum focus distance, no troublesome close-up rings



Distortion is minimized

Distortion, one of the archenemies of image processing, has been reduced to absolute minimum.

2/3" Mega-Pixel Machine Vision / FA Lens Series

23FM16SP	Less than -0.1%
23FM25SP	Less than -0.05%
23FM50SP	Less than -0.01%

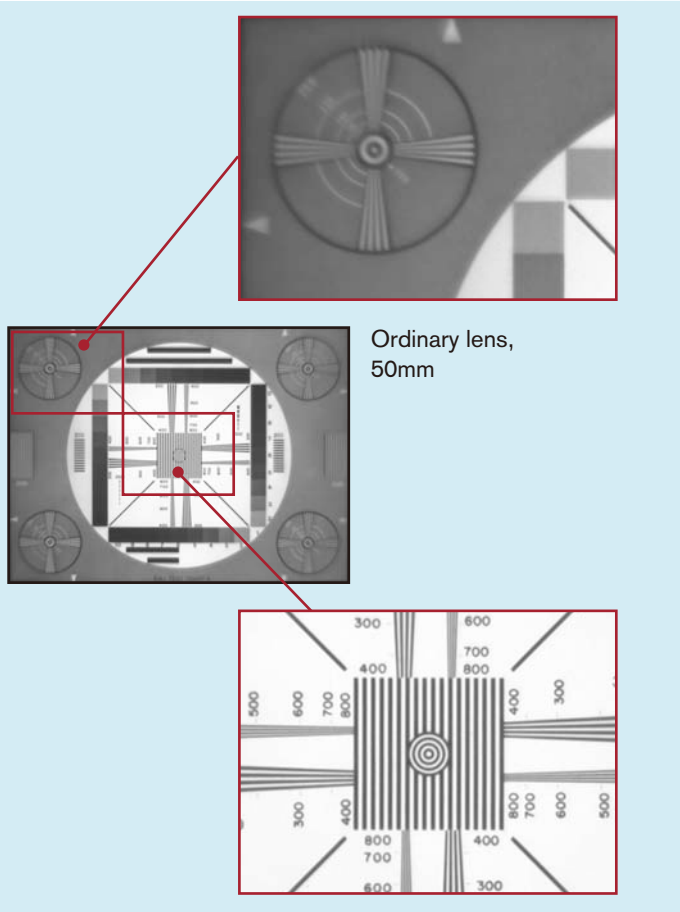
1/1.8" Mega-Pixel Machine Vision / FA Lens Series

M118FM08	Less than -2.0%
M118FM16	Less than -0.7%
M118FM25	Less than -0.2%
M118FM50	Less than -0.1%

High performance in an amazingly compact design

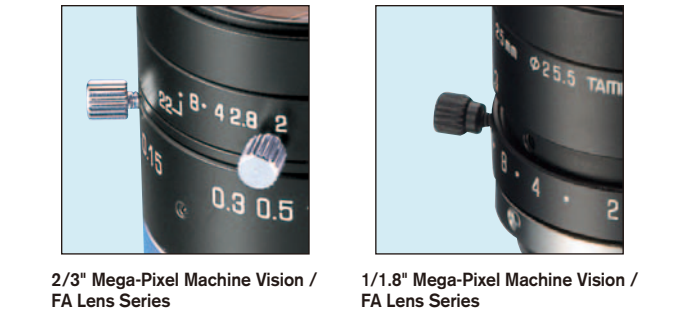
These lenses offer both high optical performance and a smaller size. Plus, all the lenses in the series use filters of the same diameter, so that future production line changes will not affect the usability of common accessories. (1/1.8" Mega-Pixel Machine Vision / FA Lens Series: ø25.5mm, 2/3" Mega-Pixel Machine Vision / FA Lens Series: ø30.5mm)

are needed. These lenses offer superior optical performance that meets the needs of cameras with resolution in the mega-pixel range, even in the periphery of image.



Lock Mechanisms

The popular lock mechanisms employed in conventional products have been added to both the focus and iris control rings. Disengagement of focus and iris settings is prevented even under environments featuring intense vibration.



Rugged construction

This series of lenses features a rugged mechanical construction to ensure that the initial performance level can be maintained for a long period of time.

2/3" Mega-Pixel Machine Vision / FA Lens Series

Compatible with cameras with resolution in the mega-pixel range

2/3" cameras 1/1.8" cameras 1/2" cameras 1/3" cameras

- Perfectly suited for use with high-end cameras with resolution in the mega-pixel range.
- Excellent not only in the close-focus range, but also throughout the entire focal length.
- Three lock screw positions are provided for ease of set up and effective space utilization. (Iris)
- All lenses in the series use the same filter diameter. (ø30.5 mm)

Model	23FM16SP	23FM25SP	23FM50SP
Imager Size	2/3	2/3	2/3
Mount	C	C	C
Focal Length	16mm	25mm	50mm
Aperture Range	1.4-22	1.4-22	2.8-32
Angle of View (Horizontal x Vertical)	2/3" : 30.9° × 23.4° 1/2" : 22.7° × 17.1° 1/3" : 17.1° × 12.9°	2/3" : 20.0° × 15.1° 1/2" : 14.6° × 11.0° 1/3" : 11.0° × 8.2°	2/3" : 10.1° × 7.6° 1/2" : 7.3° × 5.5° 1/3" : 5.5° × 4.1°
TV Distortion	Less than -0.1%	Less than -0.05%	Less than -0.01%
Focus Range	0.15m-∞	0.15m-∞	0.2m-∞
Operation	Focus: Manual w/Lock Iris: Manual w/Lock	Focus: Manual w/Lock Iris: Manual w/Lock	Focus: Manual w/Lock Iris: Manual w/Lock
Filter Size	M30.5 P=0.5mm	M30.5 P=0.5mm	M30.5 P=0.5mm
Back Focus (in air)	11.54mm	17.17mm	34.46mm
Weight	80g	103g	117g
Operating Temperature	-10-+60°C	-10-+60°C	-10-+60°C

1/1.8" Mega-Pixel Machine Vision / FA Lens Series

Compatible with cameras with resolution in the mega-pixel range

1/1.8" cameras 1/2" cameras 1/3" cameras

- Compact design, yet achieving mega-pixel performance.
- No more need for a close up ring, minimum focus distance has been minimized to useful distance. This not only improves the durability of imaging systems, but also helps to reduce overall costs.
- The core structural elements — the lens barrel and the lens fixing mechanism — have been strengthened, and vibration resistance has been enhanced.
- Three lock screw positions are provided for ease of set up and effective space utilization. (Both Iris and Focus)
- All lenses in the series use the same filter diameter. (ø25.5 mm)

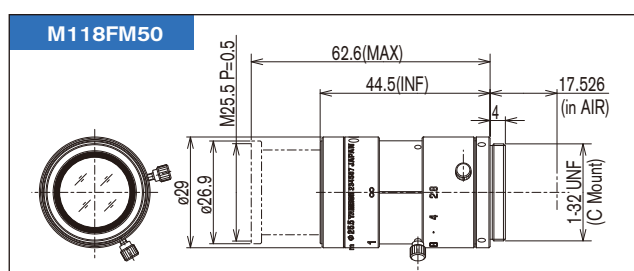
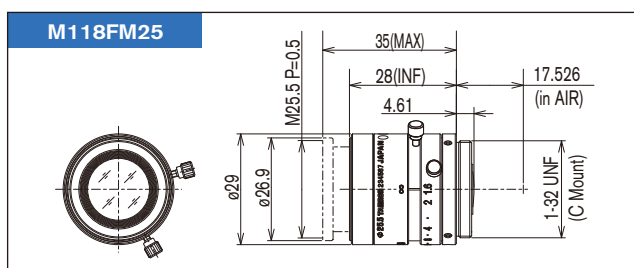
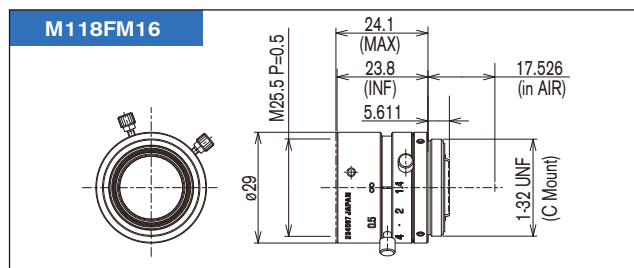
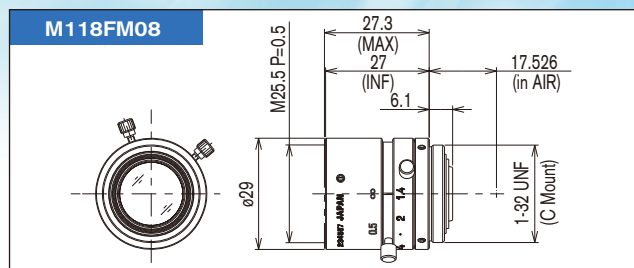
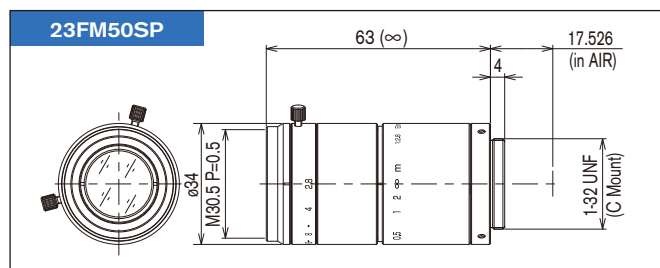
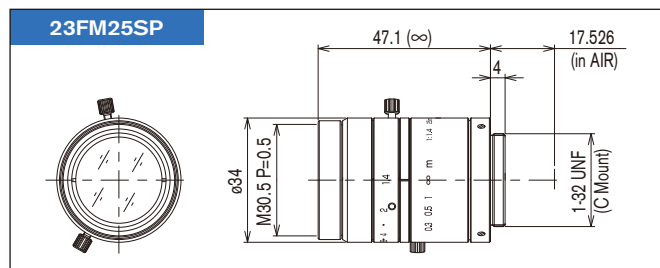
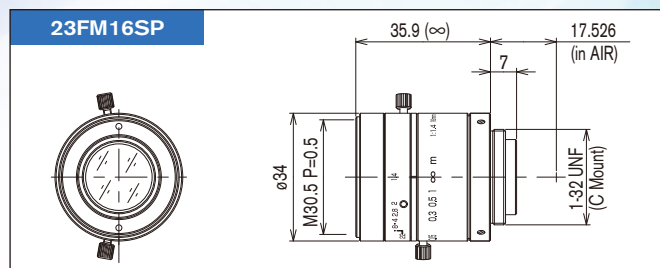
Model	M118FM08	M118FM16	M118FM25	M118FM50
Imager Size	1/1.8	1/1.8	1/1.8	1/1.8
Mount	C	C	C	C
Focal Length	8mm	16mm	25mm	50mm
Aperture Range	1.4-16	1.4-16	1.6-16	2.8-22
Angle of View (Horizontal x Vertical)	1/1.8" : 50.8° × 38.6° 1/2" : 45.0° × 34.0° 1/3" : 34.0° × 25.6°	1/1.8" : 25.9° × 19.5° 1/2" : 22.8° × 17.1° 1/3" : 17.1° × 12.9°	1/1.8" : 16.6° × 12.5° 1/2" : 14.6° × 11.0° 1/3" : 11.0° × 8.2°	1/1.8" : 8.3° × 6.2° 1/2" : 7.3° × 5.5° 1/3" : 5.5° × 4.1°
TV Distortion	Less than -2.0%	Less than -0.7%	Less than -0.2%	Less than -0.1%
Focus Range	0.1m-∞	0.1m-∞	0.1m-∞	0.2m-∞
Operation	Focus: Manual w/Lock Iris: Manual w/Lock	Focus: Manual w/Lock Iris: Manual w/Lock	Focus: Manual w/Lock Iris: Manual w/Lock	Focus: Manual w/Lock Iris: Manual w/Lock
Filter Size	M25.5 P=0.5mm	M25.5 P=0.5mm	M25.5 P=0.5mm	M25.5 P=0.5mm
Back Focus (in air)	11.726mm	12.17mm	12.92mm	20.10mm
Weight	44g	39g	39g	52g
Operating Temperature	-10-+60°C	-10-+60°C	-10-+60°C	-10-+60°C

2/3" High Resolution Machine Vision / FA Lens Series

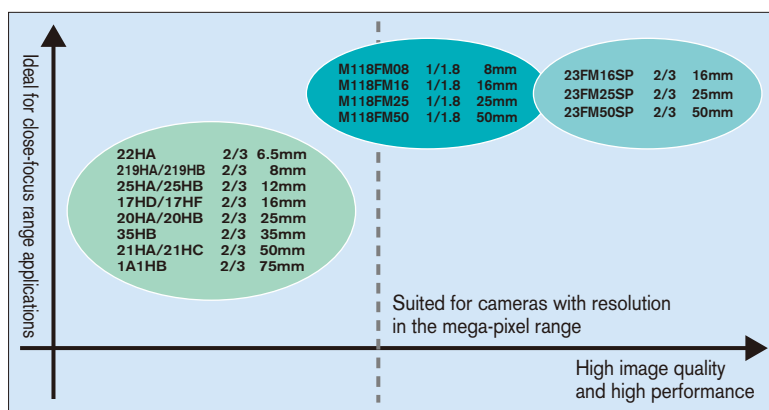
Model	22HA	219HA/HB	25HA/HB	17HD/HF	20HA/HC	35HB	21HA/HC	1A1HB
		*Type HB comes with Focus/Iris Lock.	*Type HB comes with Focus/Iris Lock.	*Type HF comes with Focus/Iris Lock.	*Type HC comes with Focus/Iris Lock.		*Type HC comes with Focus/Iris Lock.	
Imager Size	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3
Mount	C	C	C	C	C	C	C	C
Focal Length	6.5mm	8mm	12mm	16mm	25mm	35mm	50mm	75mm
Aperture Range	1.8-Close	1.4-16	1.8-16	1.4-16	1.6-16	2.1-22	2.8-22	3.9-32
Angle of View (Horizontal x Vertical)	2/3" : 71.6° × 55.5° 1/2" : 53.9° × 41.0° 1/3" : 41.0° × 31.0°	2/3" : 59.3° × 45.2° 1/2" : 43.6° × 33.1° 1/3" : 33.1° × 25.0°	2/3" : 40.9° × 30.9° 1/2" : 30.0° × 22.4° 1/3" : 22.4° × 16.6°	2/3" : 30.9° × 23.2° 1/2" : 22.5° × 16.9° 1/3" : 16.9° × 12.7°	2/3" : 20.0° × 15.0° 1/2" : 14.6° × 11.0° 1/3" : 11.0° × 8.2°	2/3" : 14.3° × 10.8° 1/2" : 10.4° × 7.8° 1/3" : 7.8° × 5.9°	2/3" : 10.0° × 7.5° 1/2" : 7.3° × 5.5° 1/3" : 5.5° × 4.1°	2/3" : 6.9° × 5.2° 1/2" : 5.0° × 3.5° 1/3" : 3.5° × 2.5°
TV Distortion	Less than -2.16	Less than -3.0%	Less than -1.6%	Less than -1.5%	Less than -0.5%	Less than +0.5%	Less than +0.5%	Less than +0.1%
Focus Range	1.5m-∞	0.26m-∞	0.26m-∞	0.29m-∞	0.21m-∞	0.3m-∞	0.44m-∞	0.5m-∞
Operation	Focus: — Iris: Manual w/Lock	Focus: Manual Iris: Manual	Focus: Manual Iris: Manual	Focus: Manual Iris: Manual	Focus: Manual Iris: Manual	Focus: Manual w/Lock Iris: Manual w/Lock	Focus: Manual Iris: Manual	Focus: Manual w/Lock Iris: Manual w/Lock
Filter Size	M35.5 P=0.5mm	M25.5 P=0.5mm	M25.5 P=0.5mm	M25.5 P=0.5mm	M25.5 P=0.5mm	M25.5 P=0.5mm	M25.5 P=0.5mm	M25.5 P=0.5mm
Back Focus (in air)	13.00mm	11.60mm	11.03mm	11.85mm	11.60mm	15.53mm	22.10mm	27.12mm
Weight	60g	40g (HB : 48g)	40g (HB : 46g)	50g (HF : 48g)	37g (HC : 40g)	44g	50g (HC : 52g)	68g
Operating Temperature	-5-+50°C	-10-+45°C	-10-+45°C	-10-+45°C	-10-+45°C	-10-+60°C	-10-+45°C	-10-+60°C

*For cameras with resolution in the mega-pixel range, please use lenses in either of the following series: 2/3" Mega-Pixel Machine Vision / FA Lens Series or 1/1.8" Mega-Pixel Machine Vision / FA Lens Series.

DIMENSIONS



Tamron Machine Vision / FA Lenses



Caution : Please read the instruction manual carefully before using the lens.

TAMRON®

Manufacturer of precise and sophisticated optical products for a broad range of industries.



Quality Assurance Activities: At Tamron, quality management activities are performed in compliance with ISO9001:2000 not only to assure product quality but to enhance customer satisfaction.

Environmental Protection: We recognize the significance of our social responsibilities. Tamron promotes corporate activities that protect the earth's environment through the establishment of a quality assurance system that is compliant with ISO14001.

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