

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

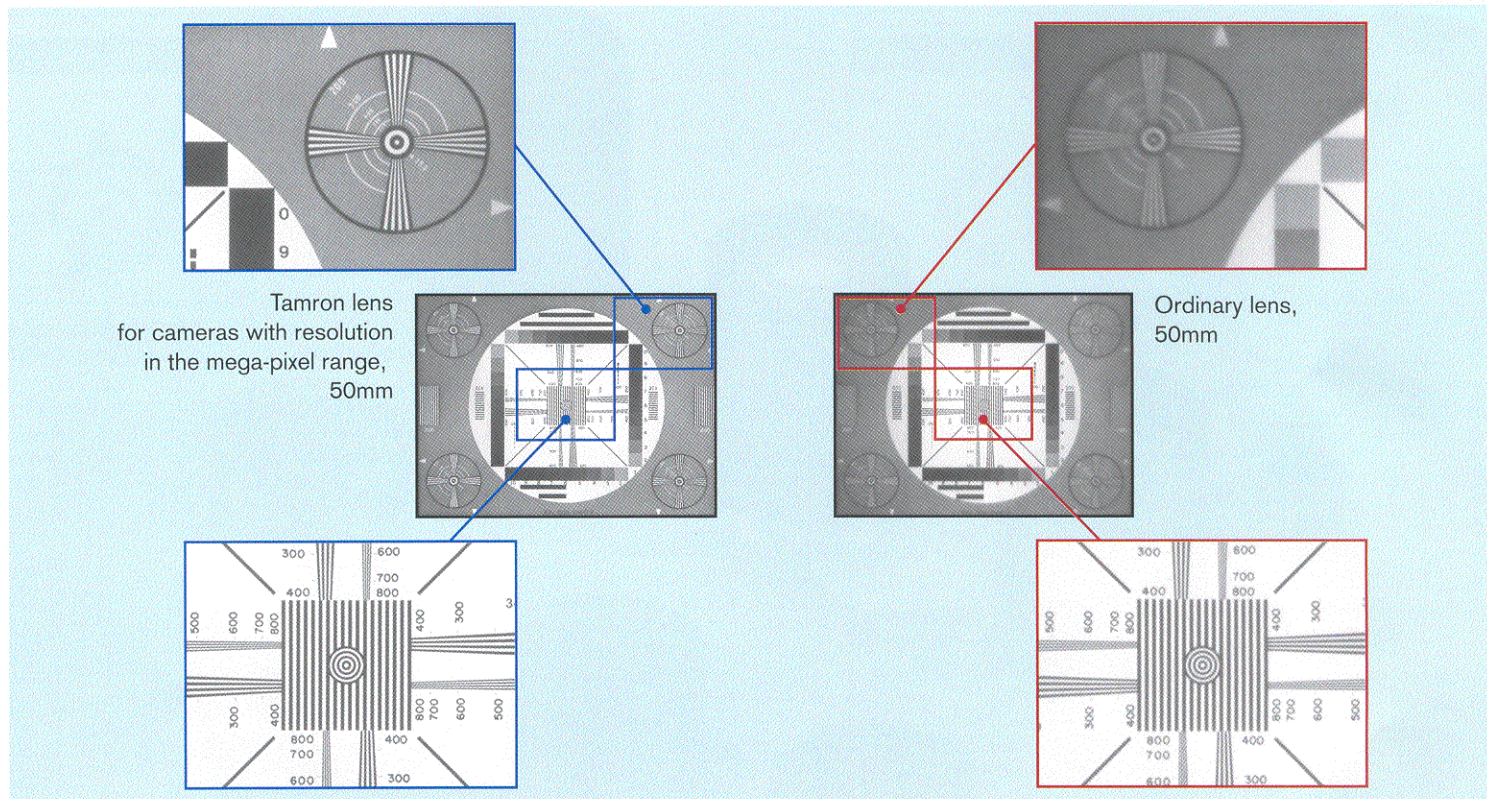
/// Compact Design

Boasting state-of-the-art technologies packed into a compact design, Tamron's Mega-Pixel Machine Vision / FA Lens Series provide superior optical performance and enhanced performance in close-focus situations and megapixel resolution.

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 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.



Tamron lens for cameras with resolution in the mega-pixel range, 50mm

Ordinary lens, 50mm

Distortion is minimized

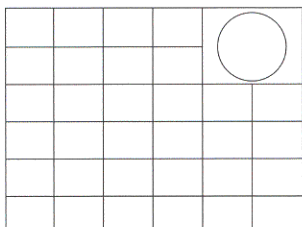
Distortion, one of the archenemies of image processing, has been reduced to absolute minimum.

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% |



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.



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



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

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: ϕ 25.5mm, 2/3" Mega-Pixel Machine Vision / FA Lens Series: ϕ 30.5mm)

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.

Perfect chassis, outstanding optical quality meet the needs of diverse image processing applications.

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)



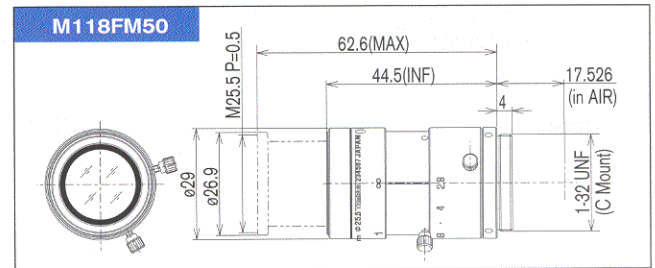
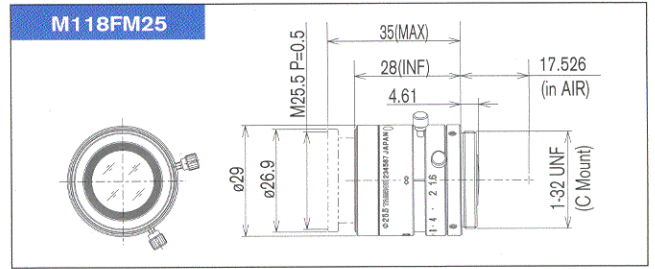
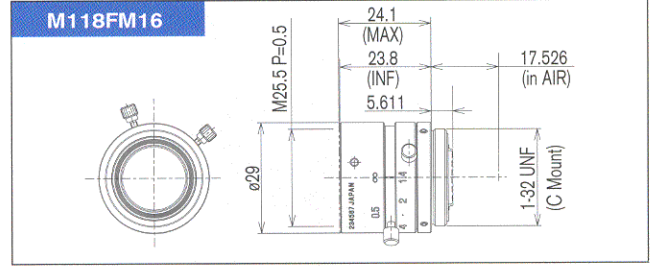
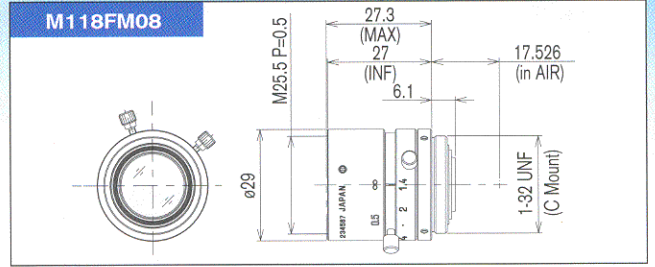
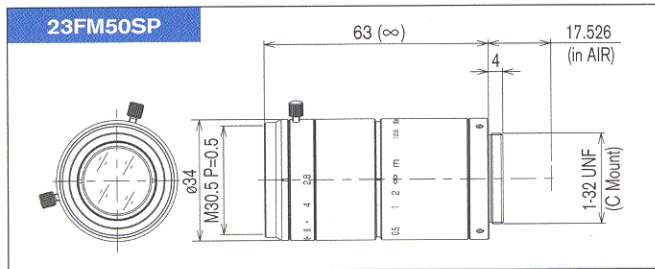
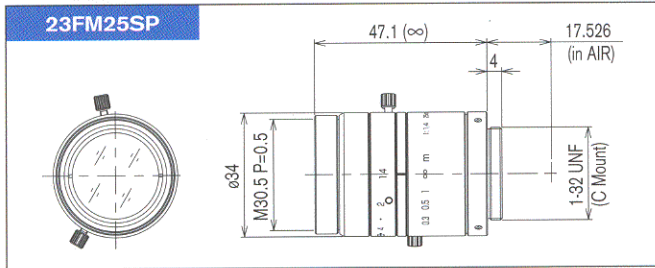
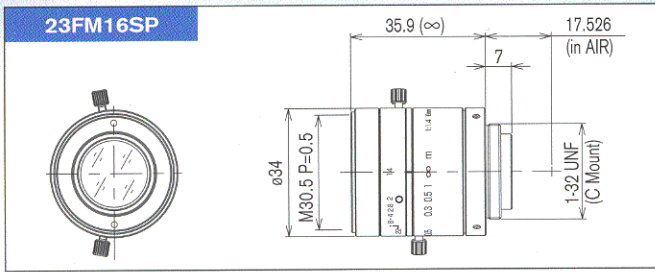
| Model | M118FM08 | M118FM16 | M118FM25 | M118FM50 |
|---------------------------------------|---|---|--|---|
| Imager Size | 1/1.8 | 1/1.8 | 1/1.8 | 1/1.8 |
| Mount | C | C | C | C |
| Focal Length | 8mm | 16mm | 25mm | 50mm |
| Aperture Range | 1.4-16 | 1.4-16 | 1.6-16 | 2.8-22 |
| Angle of View (Horizontal 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

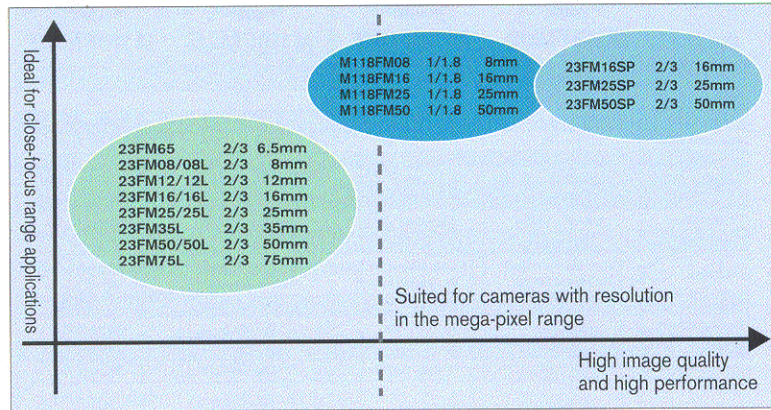
*For cameras with resolution in the mega-pixel range, please use lenses in either of the following series: 2/3" Mega-Pixel Machine Vision / FA Lens Series or 1/1.8" Mega-Pixel Machine Vision / FA Lens Series.

| Model | 23FM65 | 23FM08/08L | 23FM12/12L | 23FM16/16L | 23FM25/25L | 23FM35L | 23FM50/50L | 23FM75L |
|---------------------------------------|---|---|---|---|--|--|--|---|
| 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-∞ | 0.28m-∞ | 0.28m-∞ | 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 | 15.53mm | 22.10mm | 27.12mm | 27.12mm |
| Weight | 60g | 40g (08L: 48g) | 40g (12L: 46g) | 50g (16L: 48g) | 37g (25L: 40g) | 44g | 50g (50L: 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 |

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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