TAMRON

IP/CCTV LENSES

Mega-Pixel Vari-Focal Lenses
Vari-Focal Lenses
Fixed-Focal Lenses
Mega-Pixel Machine Vision Lenses
Machine Vision Lenses
SWIR Lenses for Industrial Applications
Accessories / Terminology Explanations

2023. ver. 01 **E**

⚠ **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.*

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specifications subject to change without notice 2023.4

VEGETABLE OIL INK

CGL-E-151-2304-0500

Contents

Vari-Focal lenses are constantly evolving together with Tamron, the optical equipment specialist

Tamron has consistently developed innovative Vari-Focal lenses compatible with the needs of a market that is accelerating towards increasingly sophisticated, ever more compact IP networks.
Images are all about “resolution”. High-quality products that refuse to compromise are the result of an unrelenting commitment to high resolution coupled with unsurpassed technological capabilities.
Offering high-resolution that is both durable and versatile, Tamron’s products enjoy worldwide success.

Products and Features

Mega-Pixel Vari-Focal Lenses

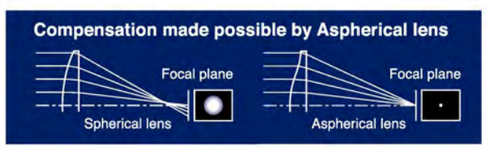
Ultra-high-resolution vari-focal lenses deliver maximum performance for mega-pixel cameras. Innovative optical technology provides high-resolution and high-contrast performance.

Flat-Field Mega-Pixel Lenses

Flat-Field Mega Pixel

Delivering uniformly ultra-high-resolution image from corner to periphery

The Tamron Flat-Field Mega-Pixel Lens Series delivers mega-pixel image quality not only in the center but also in the corners of the image field, providing the mega-pixel resolution quality needed for image cropping and enlarging, irrespective of the location of the subject on the screen. This ensures that subject faces and other relevant information can be clearly identified and distinguished, making the Tamron Flat-Field Mega-Pixel Lenses an ideal solution for high-resolution network surveillance applications. In fact all lenses of the Tamron Mega-Pixel Lens Series lineup deliver Flat-Field Mega-Pixel resolution.



Mega-Pixel Key Technologies

These Technologies Unfold the Mega-Pixel Cameras True Powers

〈M117VG3817IR, M118VM413IRCS, M118VM413IR, M118VG413IRCS, M118VG413IR, M118VP413IRCS, M118VP413IR, M118VG1250IR, M118VP1250IR, M13VG2713IR, M13VM288IR, M13VG288IR, M13VP288IR, M13VG555IR, M13VG850IR, M13VP850IR, M13VG550IR, M12VM412, M12VG412〉

Each lens in Tamron's Mega-Pixel Vari-Focal Lens Series uses Aspherical elements to minimize optical aberrations and ensures high optical quality while maintaining a compact form employing innovative optical technologies. These lenses deliver high-resolution and high-contrast images that are sharp from the center to the periphery of the image field and represent the ideal solution for applications that use high-quality mega-pixel cameras.

Vari-Focal Lenses

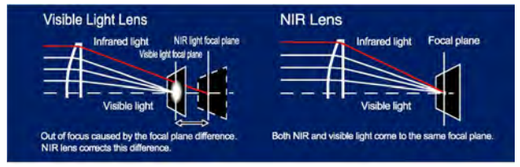
Through the beneficial employment of aspherical elements, Tamron manufactured a superior line of Vari-Focal lenses featuring fast maximum apertures, high magnification ratios compactness and uncompromised optical quality.

Wide Dynamic Range

The standard 3.0-8mm Vari-Focal lens for the 1/3" format, which meets the needs of the most frequent job applications, offers an impressive maximum open aperture of F/1.0 and F/360 minimum aperture. This wide dynamic range increases the versatility of this lens since it can be used in situations where light conditions are extreme or ever-changing.

Compatible NIR (Near-IR) *Only supported by NIR Lenses

The Tamron NIR lens series is designed to minimize focus shift in the NIR range by expanding chromatic aberration compensation to include both daylight and the NIR ranges. The lens therefore unfolds its power in 24-hour around-the-clock surveillance, when combined with a day/night camera.



Fixed-Focal Lenses

A complete series of 1/3" format Fixed-Focal Lenses from 2.2mm super wide angle (118.6˚) to 6mm (46.5˚).

Compatible NIR (Near-IR)

Tamron's 1/3" format 2.2mm, 2.8mm, 4mm and 6mm lenses are precisely compatible with day/night cameras since their chromatic aberration compensation is expanded to the NIR range.

Mega-Pixel Machine Vision Lenses Machine Vision Lenses

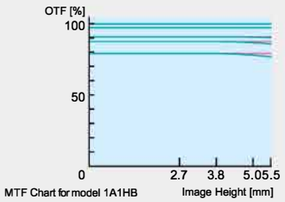
Tamron's high-resolution line-up of lenses is most suitable for such applications as FA (Factory Automation), Machine Vision, etc., where high image quality is essential. Tamron has a complete line-up of lenses that are perfectly compatible with cameras featuring mega-pixel imagers.

Minimized Distortion

Distortion, the most formidable enemy in image processing, is thoroughly compensated for, thereby reducing distortion in images to the absolute minimum. As a result, Tamron's High-Resolution Lenses provide stabilized high-performance in the field of precise measuring.

High-Resolution Extending to the Periphery

Various optical aberrations are compensated for to the absolute minimum in order to maintain high-resolution not only in the center of an image but also to its periphery.



MTF Chart for model 1A1HB

Solid and Robust Mechanism

So as to endure the vibrations of FA and Machine Vision apparatus, where lenses are built in, Tamron's High-Resolution Lenses all feature solid and robust mechanisms. This makes it possible to maintain their finest initial performances even after long periods of use.

Locking Mechanisms

Each of the lenses is available with locking mechanisms for the iris and focusing controls, making their use ideal in environment suffering from significant vibrations.

Compact Design

In consideration of using the lenses with FA and Machine Vision, all of the lenses in each series provide compact chassis and the external dimensions and filter sizes are unified.

Focal Length List

Model		page	2.2mm 2.4mm 2.8mm 5mm 8mm 12mm 50mm 100mm
Mega-Pixel Vari-Focal Lenses	8MP M117VG3817IR	7	×4.5 3.8 - 17mm FFMP Full HD IR
	5MP M118VM413IRCS	7	
	M118VM413IR	7	×3.2 4.0 - 13mm FFMP Full HD IR
	M118VG413IRCS	8	
	M118VG413IR	8	
	M118VP413IRCS	9	
	M118VP4 13IR	10	
	M118VG1250IR	7	×4.1 12 - 50mm FFMP Full HD IR
	M118VP1250IR	9	
	3MP M13VG2713IR	8	×4.6 2.7 - 13mm FFMP Full HD IR
	M13VM288IR	7	
	M13VG288IR	8	×2.8 2.8 - 8mm FFMP Full HD IR
	M13VP288IR	10	
	M13VG555IR	9	×11 5 - 55mm FFMP Full HD IR
	M13VG850IR	9	×6.2 8 - 50mm FFMP Full HD IR
	M13VP850IR	10	
	2MP M13VG550IR	9	×10 5 - 50mm FFMP Full HD IR
	MP M12VM412	10	×3 4.0 - 12mm FFMP HD
	M12VG412	10	
Vari-Focal Lenses	13VG2812ASII	12	×4.2 2.8 - 12mm SD
	13VM308ASIRII	11	×2.6 3.0 - 8mm SD IR
	13VG308ASIRII	11	
	12VM412ASIR	11	×3 4.0 - 12mm SD IR
	12VG412ASIR	12	
	13VM550ASII	12	×10 5 - 50mm SD
	13VG550ASII	12	
	13VG1040ASIR	11	×4 10 - 40mm SD IR
	12VG1040ASIR	12	
Fixed-Focal Lenses	13FM22IR	13	SD IR
	13FG22IR	14	SD IR
	13FM28IR	13	SD IR
	13FG28IR	14	SD IR
	13FM04IR	13	SD IR
	13FG04IR	14	SD IR
	13FM06IR	13	SD IR
	13FG06IR	14	SD IR

FFMP Flat-Field Mega-Pixel
Full HD Full High Definition
HD High Definition
SD Standard Definition
IR NIR (Near-IR)
2.4µm Supports 2.4µm Sensor
2.5µm Supports 2.5µm Sensor
2.74µm Supports 2.74µm Sensor
3.45µm Supports 3.45µm Sensor
4.0µm Supports 4.0µm Sensor
5.0µm Supports 5.0µm Sensor
5.86µm Supports 5.86µm Sensor

*Angle of view images are illustrative examples.

モデル名	ページ	2.2mm 2.4mm 2.8mm 5mm 8mm 12mm 50mm 100mm
Mega-Pixel Machine Vision Lenses	MA111F16VIR	15 FFMP 2.5µm
	MA111F25VIR	15 FFMP 2.5µm
	MA111F35VIR	15 FFMP 2.5µm
	MA111F50VIR	15 FFMP 2.5µm
	M112FM06	15 FFMP 3.45µm
	M112FM08	15 FFMP 3.45µm
	M112FM12	16 FFMP 3.45µm
	M112FM16	16 FFMP 3.45µm
	M112FM25	16 FFMP 3.45µm
	M112FM35	16 FFMP 3.45µm
	M112FM50	16 FFMP 3.45µm
	M112FM75	16 FFMP 3.45µm
	MA23F08V	17 FFMP 2.74µm
	MA23F12V	17 FFMP 2.74µm
	MA23F16V	17 FFMP 2.74µm
	MA23F25V	17 FFMP 2.74µm
	MA23F35V	17 FFMP 2.74µm
	MA23F50V	17 FFMP 2.74µm
	M117FM06	19 FFMP 2.4µm
	M117FM08	19 FFMP 2.4µm
	M117FM12	19 FFMP 2.4µm
	M117FM16	19 FFMP 2.4µm
	M117FM25	19 FFMP 2.4µm
	M117FM35	19 FFMP 2.4µm
	M117FM50	19 FFMP 2.4µm
	M118FM06	20 FFMP 4.0µm
	M118FM08	20 FFMP 4.0µm
	M118FM12	20 FFMP 4.0µm
	M118FM16	20 FFMP 4.0µm
	M118FM25	20 FFMP 4.0µm
	M118FM50	20 FFMP 4.0µm
	23FM16SP	18 FFMP 4.0µm
	23FM25SP	18 FFMP 4.0µm
	23FM50SP	18 FFMP 4.0µm
Machine Vision Lenses	22HA	21 SD
	219HB	21 SD
	25HA	21 SD
	25HB	21 SD
	17HF	22 SD
	20HC	22 SD
	35HB	22 SD
	21HC	22 SD
	1A1HB	22 SD
SWIR Lenses	SMA11F12	23 FFMP 5.0µm
	SMA11F16	23 FFMP 5.0µm
	SMA11F25	23 FFMP 5.0µm

Mega-Pixel Vari-Focal Lenses Day / Night

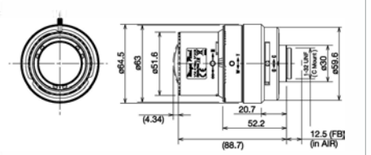
Manual Iris

M118VM413IRCS

FFMP | Full HD | IR | ASL | Imager Size 1/3 1/1.8 1/2 1/3

5MP

Imager Size		1/1.8	Operation	Focus	Manual with Lock
Mount Type		CS		Zoom	Manual with Lock
Focal Length		4.0 - 13mm		Iris	Manual with Lock
Aperture Range		F/1.5 - Close	Overall Length		98mm
Zoom Ratio		×3.2	Weight		172g
Focus Range		0.3m - ∞	Remarks		RoHs
Field of View Angle (Horizontal × Vertical)	1/1.8W	105.4°×77.6°			
	1/1.8T	33.0°×24.8°			
	1/2W	91.7°×67.9°			
	1/2T	29.0°×21.8°			
	1/3W	67.9°×50.6°			
	1/3T	21.8°×16.3°			

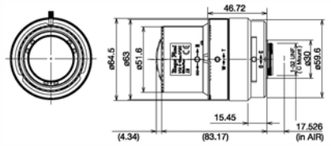


M118VM413IR

FFMP | Full HD | IR | ASL | Imager Size 2/3 1/1.8 1/2 1/3

5MP

Imager Size		1/1.8	Operation	Focus	Manual with Lock
Mount Type		C		Zoom	Manual with Lock
Focal Length		4.0 - 13mm		Iris	Manual with Lock
Aperture Range		F/1.5 - Close	Overall Length		92mm
Zoom Ratio		×3.2	Weight		167g
Focus Range		0.3m - ∞	Remarks		RoHs
Field of View Angle (Horizontal × Vertical)	1/1.8W	105.4°×77.6°			
	1/1.8T	33.0°×24.8°			
	1/2W	91.7°×67.9°			
	1/2T	29.0°×21.8°			
	1/3W	67.9°×50.6°			
	1/3T	21.8°×16.3°			

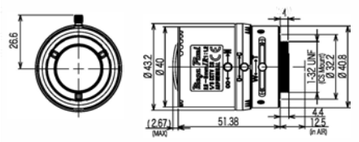


M13VM288IR

FFMP | Full HD | IR | ASL | Imager Size 2/3 1/2.7 1/3 1/4

3MP

Imager Size		1/2.7	Operation	Focus	Manual with Lock
Mount Type		CS		Zoom	Manual with Lock
Focal Length		2.8 - 8mm		Iris	Manual with Lock
Aperture Range		F/1.2 - Close	Overall Length		58mm
Zoom Ratio		×2.8	Weight		61g
Focus Range		0.3m - ∞	Remarks		RoHs
Field of View Angle (Horizontal × Vertical)	1/2.7W	124.3°×65.2°			
	1/2.7T	43.0°×24.2°			
	1/3W	100.1°×72.9°			
	1/3T	35.8°×26.8°			
	1/4W	72.9°×53.9°			
	1/4T	26.8°×20.1°			



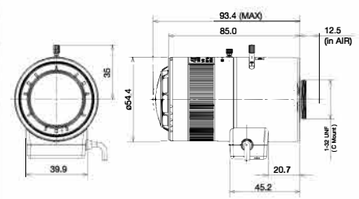
DC Auto Iris

M117VG3817IR

FFMP | Full HD | IR | ASL | Imager Size 1/1.7 1/1.8 1/2 1/3

8MP

Imager Size		1/1.7	Operation	Focus	Manual with Lock
Mount Type		CS		Zoom	Manual with Lock
Focal Length		3.8 - 17mm		Iris	DC Auto Iris
Aperture Range		F/1.4 - Close	Operating Voltage		Open 4.0V
Zoom Ratio		×4.5			Close 0.5V
Focus Range		0.3m - ∞	Overall Length		93mm
Field of View Angle (Horizontal × Vertical)	1/1.7W	121.2°×67.2°	Weight		180g
	1/1.7T	28.1°×16.1°	Remarks		RoHs
	1/1.8W	114.2°×63.5°			
	1/1.8T	26.6°×15.2°			

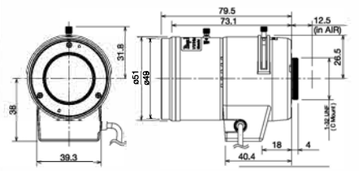


M118VG1250IR

FFMP | Full HD | IR | ASL | Imager Size 2/3 1/1.8 1/2 1/3

5MP

Imager Size		1/1.8	Operation	Focus	Manual with Lock
Mount Type		CS		Zoom	Manual with Lock
Focal Length		12 - 50mm		Iris	DC Auto Iris
Aperture Range		F/1.4 - F/360	Operating Voltage		Open 4.0V
Zoom Ratio		×4.1			Close 0.5V
Focus Range		1.0m - ∞	Overall Length		84mm
Field of View Angle (Horizontal × Vertical)	1/1.8W	34.0°×25.5°	Weight		130g
	1/1.8T	8.5°×6.4°	Remarks		RoHs
	1/2W	29.9°×22.4°			
	1/2T	7.5°×5.6°			
	1/3W	22.4°×16.8°			
	1/3T	5.6°×4.2°			



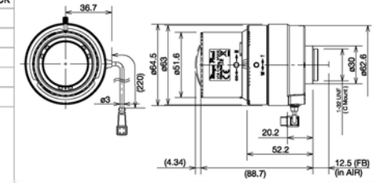
DC Auto Iris

M118VG413IRCS

FFMP | Full HD | IR | ASL | Imager Size 2/3 1/1.8 1/2 1/3

5MP

Imager Size		1/1.8	Operation	Focus	Manual with Lock
Mount Type		CS		Zoom	Manual with Lock
Focal Length		4.0 - 13mm		Iris	DC Auto Iris
Aperture Range		F/1.5 - Close	Operating Voltage		Open 3.0V
Zoom Ratio		×3.2			Close 0.5V
Focus Range		0.3m - ∞	Overall Length		98mm
Field of View Angle (Horizontal × Vertical)	1/1.8W	105.4°×77.6°	Weight		172g
	1/1.8T	33.0°×24.8°	Remarks		RoHs
	1/2W	91.7°×67.9°			
	1/2T	29.0°×21.8°			
	1/3W	67.9°×50.6°			
	1/3T	21.8°×16.3°			

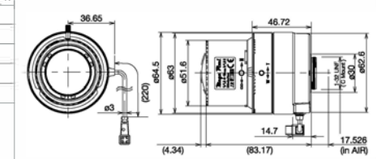


M118VG413IR

FFMP | Full HD | IR | ASL | Imager Size 2/3 1/1.8 1/2 1/3

5MP

Imager Size		1/1.8	Operation	Focus	Manual with Lock
Mount Type		C		Zoom	Manual with Lock
Focal Length		4.0 - 13mm		Iris	DC Auto Iris
Aperture Range		F/1.5 - Close	Operating Voltage		Open 3.0V
Zoom Ratio		×3.2			Close 0.7V
Focus Range		0.3m - ∞	Overall Length		92mm
Field of View Angle (Horizontal × Vertical)	1/1.8W	105.4°×77.6°	Weight		167g
	1/1.8T	33.0°×24.8°	Remarks		RoHs
	1/2W	91.7°×67.9°			
	1/2T	29.0°×21.8°			
	1/3W	67.9°×50.6°			
	1/3T	21.8°×16.3°			

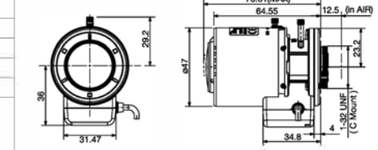


M13VG2713IR

FFMP | Full HD | IR | ASL | Imager Size 2/3 1/2.7 1/3 1/4

3MP

Imager Size		1/2.7	Operation	Focus	Manual with Lock
Mount Type		CS		Zoom	Manual with Lock
Focal Length		2.7 - 13mm		Iris	DC Auto Iris
Aperture Range		F/1.4 - 360	Operating Voltage		Open 4.0V
Zoom Ratio		×4.8			Close 0.5V
Focus Range		0.3m - ∞	Overall Length		71mm
Field of View Angle (Horizontal × Vertical)	1/2.7W	125.1°×66.1°	Weight		90g
	1/2.7T	26.7°×15.2°	Remarks		RoHs
	1/3W	101.1°×73.9°			
	1/3T	22.3°×16.8°			

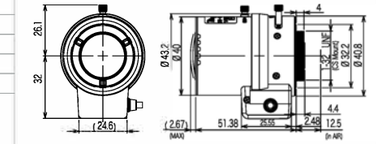


M13VG288IR

FFMP | Full HD | IR | ASL | Imager Size 2/3 1/2.7 1/3 1/4

3MP

Imager Size		1/2.7	Operation	Focus	Manual with Lock
Mount Type		CS		Zoom	Manual with Lock
Focal Length		2.8 - 8mm		Iris	DC Auto Iris
Aperture Range		F/1.2 - 360	Operating Voltage		Open 4.0V
Zoom Ratio		×2.8			Close 0.7V
Focus Range		0.3m - ∞	Overall Length		58mm
Field of View Angle (Horizontal × Vertical)	1/2.7W	124.3°×65.2°	Weight		70g
	1/2.7T	43.0°×24.2°	Remarks		RoHs
	1/3W	100.1°×72.9°			
	1/3T	35.8°×26.8°			
	1/4W	72.9°×53.9°			
	1/4T	26.8°×20.1°			



FFMP Flat-Field Mega-Pixel | Full HD Full High Definition | IR NIR (Near-IR) | ASL Aspherical Lens | RoHs RoHs Compatible

Mega-Pixel Vari-Focal Lenses Day / Night

DC Auto Iris

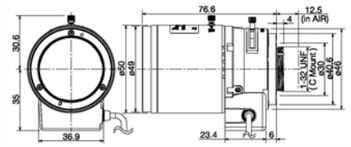
M13VG550IR

FFMP | Full HD | IR | ASL | Imager Size 2/3 1/2.7 1/3 1/4

2MP

Imager Size		1/3
Mount Type		CS
Focal Length		5 - 50mm
Aperture Range		F/1.6 - 360
Zoom Ratio		×10
Focus Range		1.0m - ∞
Field of View Angle (Horizontal × Vertical)	1/3W	53°×40°
	1/3T	5.6°×4.2°
	1/4W	40°×30°
	1/4T	4.2°×3.2°

Operation	Focus	Manual with Lock
	Zoom	Manual with Lock
	Iris	DC Auto Iris
Operating Voltage		Open 4.0V / Close 0.5V
Overall Length		81mm
Weight		104g
Remarks		RoHs



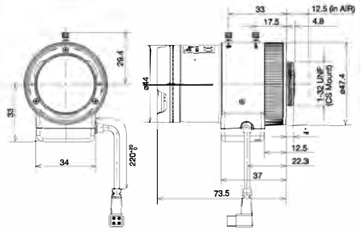
M13VG555IR

FFMP | Full HD | IR | ASL | Imager Size 2/3 1/2.7 1/3 1/4

3MP

Imager Size		1/2.7
Mount Type		CS
Focal Length		5 - 55mm
Aperture Range		F/1.6 - 360
Zoom Ratio		×11
Focus Range		0.3m - ∞
Field of View Angle (Horizontal × Vertical)	1/2.7W	61.3°×35.6°
	1/2.7T	6.0°×3.5°
	1/3 W	56.2°×32.4°
	1/3 T	5.5°×3.2°

Operation	Focus	Manual with Lock
	Zoom	Manual with Lock
	Iris	DC Auto Iris
Operating Voltage		Open 4.0V / Close 0.5V
Overall Length		74mm
Weight		110g
Remarks		RoHs



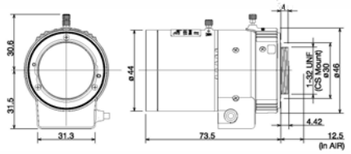
M13VG850IR

FFMP | Full HD | IR | ASL | Imager Size 2/3 1/2.7 1/3 1/4

3MP

Imager Size		1/2.7
Mount Type		CS
Focal Length		8 - 50mm
Aperture Range		F/1.6 - 360
Zoom Ratio		×6.2
Focus Range		2.0m - ∞
Field of View Angle (Horizontal × Vertical)	1/2.7W	40.2°×22.6°
	1/2.7T	6.6°×3.8°
	1/3 W	33.5°×25.1°
	1/3 T	5.6°×4.2°
	1/4 W	25.1°×18.8°
	1/4 T	4.2°×3.2°

Operation	Focus	Manual with Lock
	Zoom	Manual with Lock
	Iris	DC Auto Iris
Operating Voltage		Open 4.0V / Close 0.5V
Overall Length		78mm
Weight		106g
Remarks		RoHs



P-Iris*

*Bi-polar type Stepping motor

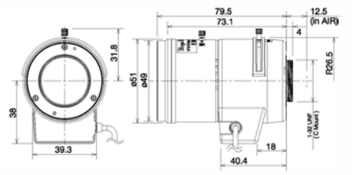
M118VP1250IR

FFMP | Full HD | IR | ASL | Imager Size 2/3 1/1.8 1/2 1/3

5MP

Imager Size		1/1.8
Mount Type		CS
Focal Length		12 - 50mm
Aperture Range		F/1.4 - Close
Zoom Ratio		×4.1
Focus Range		1.0m - ∞
Field of View Angle (Horizontal × Vertical)	1/1.8W	34.0°×25.5°
	1/1.8T	8.5°×6.4°
	1/2W	29.9°×22.4°
	1/2T	7.5°×5.6°
	1/3W	22.4°×16.8°
	1/3T	5.6°×4.2°

Operation	Focus	Manual with Lock
	Zoom	Manual with Lock
	Iris	P-Iris
Operating Voltage		3 - 5V
Overall Length		84mm
Weight		128g
Remarks		RoHs



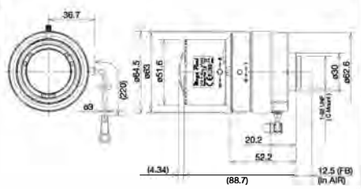
M118VP413IRCS

FFMP | Full HD | IR | ASL | Imager Size 2/3 1/1.8 1/2 1/3

5MP

Imager Size		1/1.8
Mount Type		CS
Focal Length		4.0 - 13mm
Aperture Range		F/1.5 - Close
Zoom Ratio		×3.2
Focus Range		0.3m - ∞
Field of View Angle (Horizontal × Vertical)	1/1.8W	105.4°×77.6°
	1/1.8T	33.0°×24.8°
	1/2W	91.7°×67.9°
	1/2T	29.0°×21.8°
	1/3W	67.9°×50.6°
	1/3T	21.8°×16.3°

Operation	Focus	Manual with Lock
	Zoom	Manual with Lock
	Iris	P-Iris
Operating Voltage		3 - 5V
Overall Length		98mm
Weight		172g
Remarks		RoHs



FFMP Flat-Field Mega-Pixel | Full HD Full High Definition | IR NIR (Near-IR) | ASL Aspherical Lens | RoHs RoHs Compatible

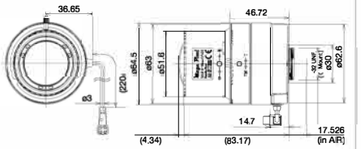
M118VP413IR

FFMP | Full HD | IR | ASL | Imager Size 2/3 1/1.8 1/2 1/3

5MP

Imager Size		1/1.8
Mount Type		C
Focal Length		4.0 - 13mm
Aperture Range		F/1.5 - Close
Zoom Ratio		×3.2
Focus Range		0.3m - ∞
Field of View Angle (Horizontal × Vertical)	1/1.8W	105.4°×77.6°
	1/1.8T	33.0°×24.8°
	1/2W	91.7°×67.9°
	1/2T	29.0°×21.8°
	1/3W	67.9°×50.6°
	1/3T	21.8°×16.3°

Operation	Focus	Manual with Lock
	Zoom	Manual with Lock
	Iris	P-Iris
Operating Voltage		3 - 5V
Overall Length		92mm
Weight		167g
Remarks		RoHs



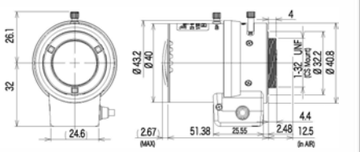
M13VP288IR

FFMP | Full HD | IR | ASL | Imager Size 2/3 1/2.7 1/3 1/4

3MP

Imager Size		1/2.7
Mount Type		CS
Focal Length		2.8 - 8mm
Aperture Range		F/1.2 - Close
Zoom Ratio		×2.8
Focus Range		0.3m - ∞
Field of View Angle (Horizontal × Vertical)	1/2.7W	124.3°×65.2°
	1/2.7T	43.0°×24.2°
	1/3W	100.1°×72.9°
	1/3T	35.8°×26.8°
	1/4W	72.9°×53.9°
	1/4T	26.8°×20.1°

Operation	Focus	Manual with Lock
	Zoom	Manual with Lock
	Iris	P-Iris
Operating Voltage		3 - 5V
Overall Length		58mm
Weight		68g
Remarks		RoHs



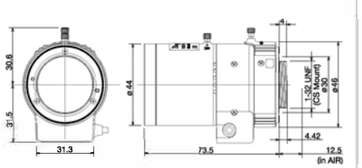
M13VP850IR

FFMP | Full HD | IR | ASL | Imager Size 2/3 1/2.7 1/3 1/4

3MP

Imager Size		1/2.7
Mount Type		CS
Focal Length		8 - 50mm
Aperture Range		F/1.6 - Close
Zoom Ratio		×6.2
Focus Range		2.0m - ∞
Field of View Angle (Horizontal × Vertical)	1/2.7W	40.2°× 22.6°
	1/2.7T	6.6°× 3.8°
	1/3 W	33.5°× 25.1°
	1/3 T	5.6°× 4.2°
	1/4 W	25.1°× 18.8°
	1/4 T	4.2°× 3.2°

Operation	Focus	Manual with Lock
	Zoom	Manual with Lock
	Iris	P-Iris
Operating Voltage		3 - 5V
Overall Length		78mm
Weight		106g
Remarks		RoHs



Connecting the lens to a camera that does not support P-Iris may cause a malfunction. The lens cannot be connected to cameras that use DC auto iris or video auto iris lenses.

Mega-Pixel Vari-Focal Lenses

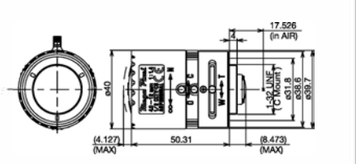
Manual Iris

M12VM412

FFMP | HD | ASL | Imager Size 2/3 1/2 1/3 1/4

Imager Size		1/2
Mount Type		C
Focal Length		4.0 - 12mm
Aperture Range		F/1.4 - Close
Zoom Ratio		×3
Focus Range		0.3m - ∞
Field of View Angle (Horizontal × Vertical)	1/2W	93.9°× 68.8°
	1/2T	31.4°× 23.6°
	1/3W	68.8°× 51.0°
	1/3T	23.6°× 17.7°

Operation	Focus	Manual with Lock
	Zoom	Manual with Lock
	Iris	Manual with Lock
Overall Length		63mm
Weight		58g
Remarks		RoHs



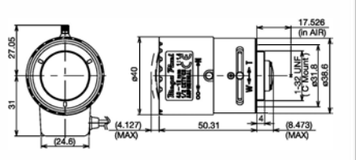
DC Auto Iris

M12VG412

FFMP | HD | ASL | Imager Size 2/3 1/2 1/3 1/4

Imager Size		1/2
Mount Type		C
Focal Length		4.0 - 12mm
Aperture Range		F/1.4 - 360
Zoom Ratio		×3
Focus Range		0.3m - ∞
Field of View Angle (Horizontal × Vertical)	1/2W	93.9°× 68.8°
	1/2T	31.4°× 23.6°
	1/3W	68.8°× 51.0°
	1/3T	23.6°× 17.7°

Operation	Focus	Manual with Lock
	Zoom	Manual with Lock
	Iris	DC Auto Iris
Operating Voltage		Open 3.0V / Close 0.5V
Overall Length		63mm
Weight		69g
Remarks		RoHs



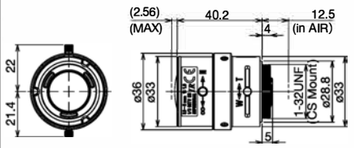
Vari-Focal Lenses Day / Night

Manual Iris

13VM308ASIRII

SD — IR — ASL — Imager Size 2/3 1/2 1/3 1/4

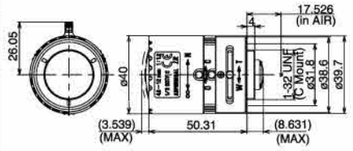
Imager Size	1/3	Operation	Focus	Manual with Lock	
Mount Type	CS		Zoom	Manual with Lock	
Focal Length	3.0 - 8mm		Iris	Manual with Lock	
Aperture Range	F/1.0 - Close	Overall Length		47mm	
Zoom Ratio	×2.6	Weight		38g	
Focus Range	0.2m - ∞	Remarks			RoHs
Field of View Angle (Horizontal × Vertical)	1/3 W	92.5°×68.0°			
	1/3 T	35.7°×26.8°			
	1/4 W	68.0°×50.4°			
	1/4T	26.8°×20.1°			



12VM412ASIR

SD — IR — ASL — Imager Size 2/3 1/2 1/3 1/4

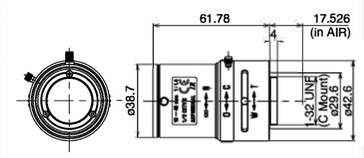
Imager Size	1/2	Operation	Focus	Manual with Lock	
Mount Type	C		Zoom	Manual with Lock	
Focal Length	4.0 - 12mm		Iris	Manual with Lock	
Aperture Range	F/1.2 - Close	Overall Length		62mm	
Zoom Ratio	×3	Weight		58g	
Focus Range	0.3m - ∞	Remarks			RoHs
Field of View Angle (Horizontal × Vertical)	1/2 W	93.7°×68.9°			
	1/2 T	31.2°×23.4°			
	1/3 W	68.9°×51.1°			
	1/3 T	23.4°×17.5°			



12VM1040ASIR

SD — IR — ASL — Imager Size 2/3 1/2 1/3 1/4

Imager Size	1/2	Operation	Focus	Manual with Lock	
Mount Type	C		Zoom	Manual with Lock	
Focal Length	10 - 40mm		Iris	Manual with Lock	
Aperture Range	F/1.4 - Close	Overall Length		66mm	
Zoom Ratio	×4	Weight		77g	
Focus Range	0.5m - ∞	Remarks			RoHs
Field of View Angle (Horizontal × Vertical)	1/2 W	37.5°×27.6°			
	1/2 T	9.3°×7.0°			
	1/3 W	27.6°×20.4°			
	1/3 T	7.0°×5.3°			

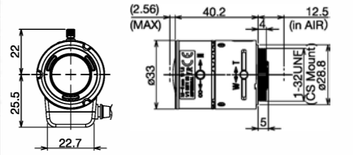


DC Auto Iris

13VG308ASIRII

SD — IR — ASL — Imager Size 2/3 1/2 1/3 1/4

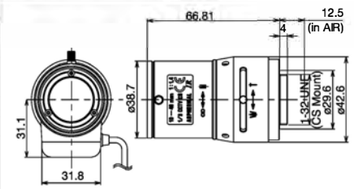
Imager Size	1/3	Operation	Focus	Manual with Lock	
Mount Type	CS		Zoom	Manual with Lock	
Focal Length	3.0 - 8mm		Iris	DC Auto Iris	
Aperture Range	F/1.0 - 360	Operating Voltage		Open 3.0V	
Zoom Ratio	×2.6			Close 0.7V	
Focus Range	0.2m - ∞	Overall Length		48mm	
Field of View Angle (Horizontal × Vertical)	1/3 W	92.5°×68.0°	Weight		45g
	1/3 T	35.7°×26.8°	Remarks		RoHs
	1/4 W	68.0°×50.4°			
	1/4T	26.8°×20.1°			



13VG1040ASIR

SD — IR — ASL — Imager Size 2/3 1/2 1/3 1/4

Imager Size	1/3	Operation	Focus	Manual with Lock	
Mount Type	CS		Zoom	Manual with Lock	
Focal Length	10 - 40mm		Iris	DC Auto Iris	
Aperture Range	F/1.4 - 360	Operating Voltage		Open 3.0V	
Zoom Ratio	×4			Close 0.5V	
Focus Range	0.5m - ∞	Overall Length		71mm	
Field of View Angle (Horizontal × Vertical)	1/3 W	27.6°×20.4°	Weight		89g
	1/3 T	7.0°×5.3°	Remarks		RoHs
	1/4 W	20.4°×15.2°			
	1/4 T	5.2°×3.9°			

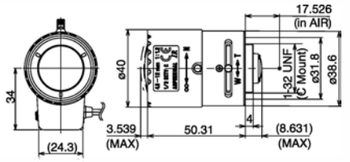


DC Auto Iris

12VG412ASIR

SD — IR — ASL — Imager Size 2/3 1/2 1/3 1/4

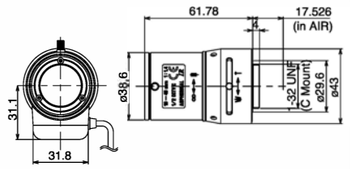
Imager Size	1/2	Operation	Focus	Manual with Lock	
Mount Type	C		Zoom	Manual with Lock	
Focal Length	4.0 - 12mm		Iris	DC Auto Iris	
Aperture Range	F/1.2 - 360	Operating Voltage		Open 3.0V	
Zoom Ratio	×3			Close 0.5V	
Focus Range	0.3m - ∞	Overall Length		62mm	
Field of View Angle (Horizontal × Vertical)	1/2 W	93.7°×68.9°	Weight		68g
	1/2 T	31.2°×23.4°	Remarks		RoHs
	1/3 W	68.9°×51.1°			
	1/3 T	23.4°×17.5°			



12VG1040ASIR

SD — IR — ASL — Imager Size 2/3 1/2 1/3 1/4

Imager Size	1/2	Operation	Focus	Manual with Lock	
Mount Type	C		Zoom	Manual with Lock	
Focal Length	10 - 40mm		Iris	DC Auto Iris	
Aperture Range	F/1.4 - 360	Operating Voltage		Open 3.0V	
Zoom Ratio	×4			Close 0.5V	
Focus Range	0.5m - ∞	Overall Length		66mm	
Field of View Angle (Horizontal × Vertical)	1/2 W	37.5°×27.6°	Weight		87g
	1/2 T	9.3°×7.0°	Remarks		RoHs
	1/3 W	27.6°×20.4°			
	1/3 T	7.0°×5.3°			



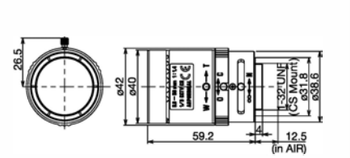
Vari-Focal Lenses

Manual Iris

13VM550ASII

SD — ASL — Imager Size 2/3 1/2 1/3 1/4

Imager Size	1/3	Operation	Focus	Manual with Lock	
Mount Type	CS		Zoom	Manual with Lock	
Focal Length	5 - 50mm		Iris	Manual with Lock	
Aperture Range	F/1.4 - Close	Overall Length		63mm	
Zoom Ratio	×10	Weight		75g	
Focus Range	1.0m - ∞	Remarks			RoHs
Field of View Angle (Horizontal × Vertical)	1/3 W	53.6°×40.3°			
	1/3 T	5.6°×4.2°			
	1/4 W	40.3°×30.1°			
	1/4 T	4.2°×3.1°			

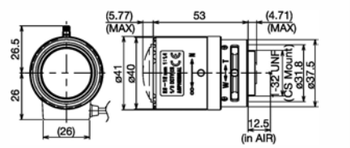


DC Auto Iris

13VG2812ASII

SD — ASL — Imager Size 2/3 1/2 1/3 1/4

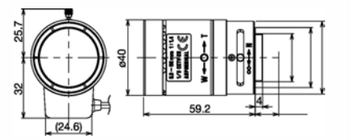
Imager Size	1/3	Operation	Focus	Manual with Lock	
Mount Type	CS		Zoom	Manual with Lock	
Focal Length	2.8 - 12mm		Iris	DC Auto Iris	
Aperture Range	F/1.4 - 360	Operating Voltage		Open 3.3V	
Zoom Ratio	×4.2			Close 0.7V	
Focus Range	0.3m - ∞	Overall Length		64mm	
Field of View Angle (Horizontal × Vertical)	1/3 W	97.4°×72.5°	Weight		71g
	1/3 T	24.1°×18.1°	Remarks		RoHs
	1/4 W	72.5°×54.1°			
	1/4 T	18.1°×13.6°			



13VG550ASII

SD — ASL — Imager Size 2/3 1/2 1/3 1/4

Imager Size	1/3	Operation	Focus	Manual with Lock	
Mount Type	CS		Zoom	Manual with Lock	
Focal Length	5 - 50mm		Iris	DC Auto Iris	
Aperture Range	F/1.4 - 360	Operating Voltage		Open 4.0V	
Zoom Ratio	×10			Close 0.7V	
Focus Range	1.0m - ∞	Overall Length		63mm	
Field of View Angle (Horizontal × Vertical)	1/3 W	53.6°×40.3°	Weight		84g
	1/3 T	5.6°×4.2°	Remarks		RoHs
	1/4 W	40.3°×30.1°			
	1/4 T	4.2°×3.1°			



FFMP Flat-Field Mega-Pixel — SD Standard Definition — ASL Aspherical Lens — IR NIR (Near-IR) — RoHs RoHs Compatible

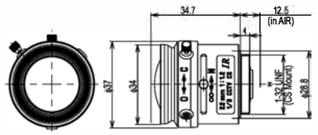
Fixed-Focal Lenses Day / Night

Manual Iris

13FM22IR

SD — IR — Imager Size 2/3 1/2 **1/3** 1/4

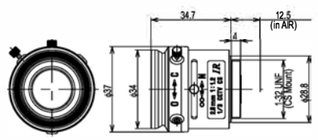
Imager Size		1/3	Operation	Focus	Manual with Lock
Mount Type		CS		Iris	Manual with Lock
Focal Length		2.2mm	Overall Length		42mm
Aperture Range		F/1.2 - Close	Weight		41g
Focus Range		0.1m - ∞	Remarks		RoHs
Field of View Angle (Horizontal × Vertical)	1/3	118.6°×90.0°			
	1/4	90.0°×67.9°			



13FM28IR

SD — IR — Imager Size 2/3 1/2 **1/3** 1/4

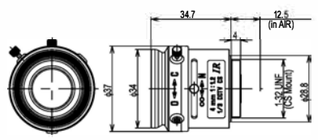
Imager Size		1/3	Operation	Focus	Manual with Lock
Mount Type		CS		Iris	Manual with Lock
Focal Length		2.8mm	Overall Length		39mm
Aperture Range		F/1.2 - Close	Weight		36g
Focus Range		0.2m - ∞	Remarks		RoHs
Field of View Angle (Horizontal × Vertical)	1/3	93.2°×70.7°			
	1/4	70.7°×53.4°			



13FM04IR

SD — IR — Imager Size 2/3 1/2 **1/3** 1/4

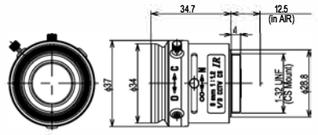
Imager Size		1/3	Operation	Focus	Manual with Lock
Mount Type		CS		Iris	Manual with Lock
Focal Length		4mm	Overall Length		39mm
Aperture Range		F/1.2 - Close	Weight		33g
Focus Range		0.2m - ∞	Remarks		RoHs
Field of View Angle (Horizontal × Vertical)	1/3	65.6°×49.7°			
	1/4	49.7°×37.4°			



13FM06IR

SD — IR — Imager Size 2/3 1/2 **1/3** 1/4

Imager Size		1/3	Operation	Focus	Manual with Lock
Mount Type		CS		Iris	Manual with Lock
Focal Length		6mm	Overall Length		39mm
Aperture Range		F/1.2 - Close	Weight		30g
Focus Range		0.2m - ∞	Remarks		RoHs
Field of View Angle (Horizontal × Vertical)	1/3	46.5°×34.6°			
	1/4	34.6°×25.9°			

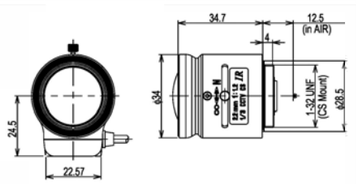


DC Auto Iris

13FG22IR

SD — IR — Imager Size 2/3 1/2 **1/3** 1/4

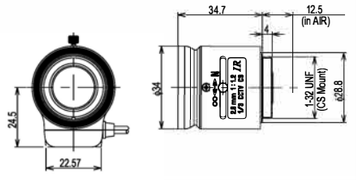
Imager Size		1/3	Operation	Focus	Manual with Lock
Mount Type		CS		Iris	DC Auto Iris
Focal Length		2.2mm	Operating Voltage		Open 2.5V
Aperture Range		F/1.2 - 360			Close 0.5V
Focus Range		0.1m - ∞	Overall Length		42mm
Field of View Angle (Horizontal × Vertical)	1/3	118.6°×90.0°	Weight		49g
	1/4	90.0°×67.9°	Remarks		RoHs



13FG28IR

SD — IR — Imager Size 2/3 1/2 **1/3** 1/4

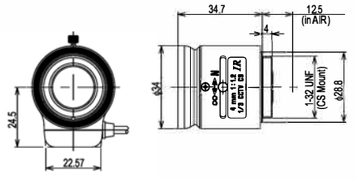
Imager Size		1/3	Operation	Focus	Manual with Lock
Mount Type		CS		Iris	DC Auto Iris
Focal Length		2.8mm	Operating Voltage		Open 2.5V
Aperture Range		F/1.2 - 360			Close 0.5V
Focus Range		0.2m - ∞	Overall Length		39mm
Field of View Angle (Horizontal × Vertical)	1/3	93.2°×70.7°	Weight		44g
	1/4	70.7°×53.4°	Remarks		RoHs



13FG04IR

SD — IR — Imager Size 2/3 1/2 **1/3** 1/4

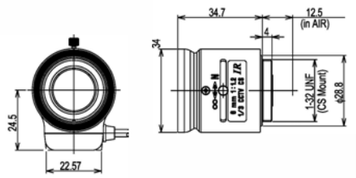
Imager Size		1/3	Operation	Focus	Manual with Lock
Mount Type		CS		Iris	DC Auto Iris
Focal Length		4mm	Operating Voltage		Open 2.5V
Aperture Range		F/1.2 - 360			Close 0.5V
Focus Range		0.2m - ∞	Overall Length		39mm
Field of View Angle (Horizontal × Vertical)	1/3	65.6°×49.7°	Weight		40g
	1/4	49.7°×37.4°	Remarks		RoHs



13FG06IR

SD — IR — Imager Size 2/3 1/2 **1/3** 1/4

Imager Size		1/3	Operation	Focus	Manual with Lock
Mount Type		CS		Iris	DC Auto Iris
Focal Length		6mm	Operating Voltage		Open 2.5V
Aperture Range		F/1.2 - 360			Close 0.5V
Focus Range		0.2m - ∞	Overall Length		39mm
Field of View Angle (Horizontal × Vertical)	1/3	46.5°×34.6°	Weight		38g
	1/4	34.6°×25.9°	Remarks		RoHs



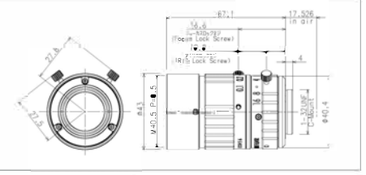
SD Standard Definition — IR NIR (Near-IR) — RoHs RoHs Compatible

Mega-Pixel Machine Vision Lenses

M111F16VIR

FFMP | 2.5µm | Imager Size 1.1/1 1 2/3

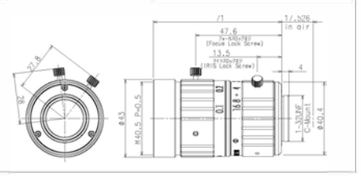
Imager Size	1.1	Operation	Focus	Manual with Lock
Mount Type	C		Iris	Manual with Lock
Focal Length	16mm	Filter Size		M40.5 P=0.5mm
Aperture Range	F/2.8 - 16	Overall Length		67.1mm
Focus Range	0.1m - ∞	Weight		178g
Field of View Angle (Horizontal × Vertical) 1.1	47.7°× 36.8°	Remarks		RoHs
Field of View Angle (Horizontal × Vertical) 2/3	30.8°× 23.3°			



M111F25VIR

FFMP | 2.5µm | Imager Size 1.1/1 1 2/3

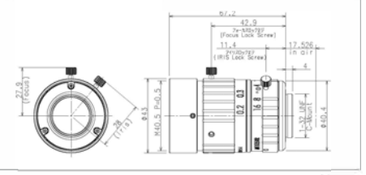
Imager Size	1.1	Operation	Focus	Manual with Lock
Mount Type	C		Iris	Manual with Lock
Focal Length	25mm	Filter Size		M40.5 P=0.5mm
Aperture Range	F/2.8 - 16	Overall Length		71mm
Focus Range	0.1m - ∞	Weight		196g
Field of View Angle (Horizontal × Vertical) 1.1	31.7°× 23.9°	Remarks		RoHs
Field of View Angle (Horizontal × Vertical) 2/3	20.0°× 15.0°			



M111F35VIR

FFMP | 2.5µm | Imager Size 1.1/1 1 2/3

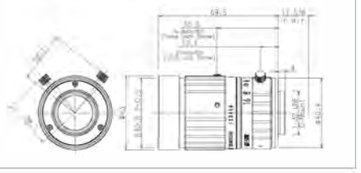
Imager Size	1.1	Operation	Focus	Manual with Lock
Mount Type	C		Iris	Manual with Lock
Focal Length	35mm	Filter Size		M40.5 P=0.5mm
Aperture Range	F/2.8 - 16	Overall Length		67.2mm
Focus Range	0.2m - ∞	Weight		179g
Field of View Angle (Horizontal × Vertical) 1.1	22.8°× 17.2°	Remarks		RoHs
Field of View Angle (Horizontal × Vertical) 2/3	14.4°× 10.8°			



M111F50VIR

FFMP | 2.5µm | Imager Size 1.1/1 1 2/3

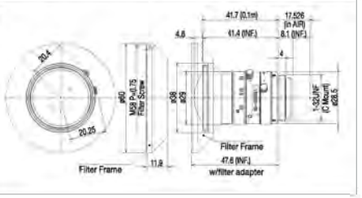
Imager Size	1.1	Operation	Focus	Manual with Lock
Mount Type	C		Iris	Manual with Lock
Focal Length	50mm	Filter Size		M40.5 P=0.5mm
Aperture Range	F/2.8 - 16	Overall Length		69.5mm
Focus Range	0.2m - ∞	Weight		181g
Field of View Angle (Horizontal × Vertical) 1.1	16.0°× 12.0°	Remarks		RoHs
Field of View Angle (Horizontal × Vertical) 2/3	10.1°× 7.5°			



M112FM06

FFMP | 3.45µm | 5.86µm | Imager Size 1.1/1 1/1.2 2/3

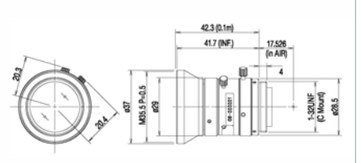
Imager Size	1/1.2	Operation	Focus	Manual with Lock
Mount Type	C		Iris	Manual with Lock
Focal Length	6mm	Filter Size		M58 P=0.75mm
Aperture Range	F/2.8 - 16	Overall Length		48mm
Focus Range	0.1m - ∞	Weight		115g
Field of View Angle (Horizontal × Vertical) 1/1.2 (4:3)	87.7°×70.1°	Remarks		RoHs
Field of View Angle (Horizontal × Vertical) 1/1.2 (16:9)	93.1°×59.0°			
Field of View Angle (Horizontal × Vertical) 2/3 (4:3)	75.5°×59.2°			
Field of View Angle (Horizontal × Vertical) 2/3 (16:9)	80.8°×49.3°			



M112FM08

FFMP | 3.45µm | 5.86µm | Imager Size 1.1/1 1/1.2 2/3

Imager Size	1/1.2	Operation	Focus	Manual with Lock
Mount Type	C		Iris	Manual with Lock
Focal Length	8mm	Filter Size		M35.5 P=0.5mm
Aperture Range	F/2.4 - 16	Overall Length		47mm
Focus Range	0.1m - ∞	Weight		86g
Field of View Angle (Horizontal × Vertical) 1/1.2 (4:3)	70.3°×54.9°	Remarks		RoHs
Field of View Angle (Horizontal × Vertical) 1/1.2 (16:9)	75.3°×45.6°			
Field of View Angle (Horizontal × Vertical) 2/3 (4:3)	59.5°×45.8°			
Field of View Angle (Horizontal × Vertical) 2/3 (16:9)	64.0°×37.8°			

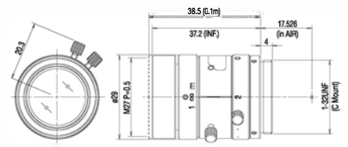


FFMP Flat-Field Mega-Pixel | 2.5µm Supports 2.5µm Sensor | 3.45µm Supports 3.45µm Sensor | 5.86µm Supports 5.86µm Sensor | RoHs RoHsCompatible 有害物質規制

M112FM12

FFMP | 3.45µm | 5.86µm | Imager Size 1.1/1 1/1.2 2/3

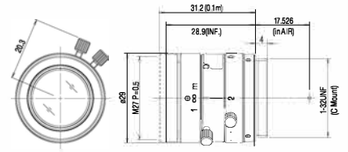
Imager Size	1/1.2	Operation	Focus	Manual with Lock
Mount Type	C		Iris	Manual with Lock
Focal Length	12mm	Filter Size		M27 P=0.5mm
Aperture Range	F/2.0 - 16	Overall Length		43mm
Focus Range	0.1m - ∞	Weight		64g
Field of View Angle (Horizontal × Vertical) 1/1.2 (4:3)	49.2°× 37.6°	Remarks		RoHs
Field of View Angle (Horizontal × Vertical) 1/1.2 (16:9)	53.2°× 30.6°			
Field of View Angle (Horizontal × Vertical) 2/3 (4:3)	40.9°× 31.1°			
Field of View Angle (Horizontal × Vertical) 2/3 (16:9)	44.4°× 25.5°			



M112FM16

FFMP | 3.45µm | 5.86µm | Imager Size 1.1/1 1/1.2 2/3

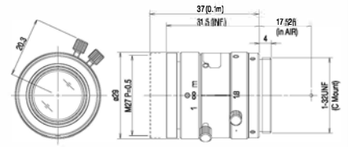
Imager Size	1/1.2	Operation	Focus	Manual with Lock
Mount Type	C		Iris	Manual with Lock
Focal Length	16mm	Filter Size		M27 P=0.5mm
Aperture Range	F/2.0 - 16	Overall Length		36mm
Focus Range	0.1m - ∞	Weight		51g
Field of View Angle (Horizontal × Vertical) 1/1.2 (4:3)	37.4°× 28.4°	Remarks		RoHs
Field of View Angle (Horizontal × Vertical) 1/1.2 (16:9)	40.5°× 22.3°			
Field of View Angle (Horizontal × Vertical) 2/3 (4:3)	31.0°× 23.4°			
Field of View Angle (Horizontal × Vertical) 2/3 (16:9)	33.7°× 19.2°			



M112FM25

FFMP | 3.45µm | 5.86µm | Imager Size 1.1/1 1/1.2 2/3

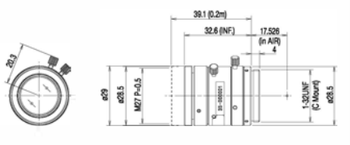
Imager Size	1/1.2	Operation	Focus	Manual with Lock
Mount Type	C		Iris	Manual with Lock
Focal Length	25mm	Filter Size		M27 P=0.5mm
Aperture Range	F/1.8 - 16	Overall Length		41mm
Focus Range	0.1m - ∞	Weight		54g
Field of View Angle (Horizontal × Vertical) 1/1.2 (4:3)	24.1°× 18.2°	Remarks		RoHs
Field of View Angle (Horizontal × Vertical) 1/1.2 (16:9)	26.2°× 15.0°			
Field of View Angle (Horizontal × Vertical) 2/3 (4:3)	19.9°× 15.0°			
Field of View Angle (Horizontal × Vertical) 2/3 (16:9)	21.7°× 12.3°			



M112FM35

FFMP | 3.45µm | 5.86µm | Imager Size 1.1/1 1/1.2 2/3

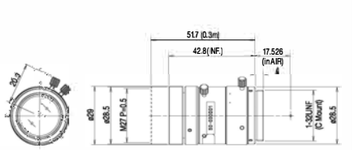
Imager Size	1/1.2	Operation	Focus	Manual with Lock
Mount Type	C		Iris	Manual with Lock
Focal Length	35mm	Filter Size		M27 P=0.5mm
Aperture Range	F/2.1 - 16	Overall Length		44mm
Focus Range	0.2m - ∞	Weight		57g
Field of View Angle (Horizontal × Vertical) 1/1.2 (4:3)	17.3°×13.1°	Remarks		RoHs
Field of View Angle (Horizontal × Vertical) 1/1.2 (16:9)	18.8°×10.7°			
Field of View Angle (Horizontal × Vertical) 2/3 (4:3)	14.3°×10.7°			
Field of View Angle (Horizontal × Vertical) 2/3 (16:9)	15.5°×8.8°			



M112FM50

FFMP | 3.45µm | 5.86µm | Imager Size 1.1/1 1/1.2 2/3

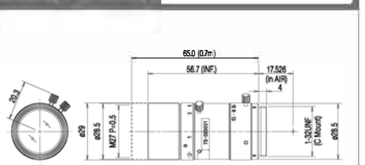
Imager Size	1/1.2	Operation	Focus	Manual with Lock
Mount Type	C		Iris	Manual with Lock
Focal Length	50mm	Filter Size		M27 P=0.5mm
Aperture Range	F/2.8 - 16	Overall Length		56mm
Focus Range	0.3m - ∞	Weight		70g
Field of View Angle (Horizontal × Vertical) 1/1.2 (4:3)	12.2°×9.2°	Remarks		RoHs
Field of View Angle (Horizontal × Vertical) 1/1.2 (16:9)	13.2°×7.5°			
Field of View Angle (Horizontal × Vertical) 2/3 (4:3)	10.0°×7.5°			
Field of View Angle (Horizontal × Vertical) 2/3 (16:9)	10.9°×6.16°			



M112FM75

FFMP | 3.45µm | 5.86µm | Imager Size 1.1/1 1/1.2 2/3

Imager Size	1/1.2	Operation	Focus	Manual with Lock
Mount Type	C		Iris	Manual with Lock
Focal Length	75mm	Filter Size		M27 P=0.5mm
Aperture Range	F/3.5 - 16	Overall Length		69mm
Focus Range	0.7m - ∞	Weight		81g
Field of View Angle (Horizontal × Vertical) 1/1.2 (4:3)	8.1°×6.1°	Remarks		RoHs
Field of View Angle (Horizontal × Vertical) 1/1.2 (16:9)	8.9°×5.0°			
Field of View Angle (Horizontal × Vertical) 2/3 (4:3)	6.7°×5.0°			
Field of View Angle (Horizontal × Vertical) 2/3 (16:9)	7.3°×4.1°			

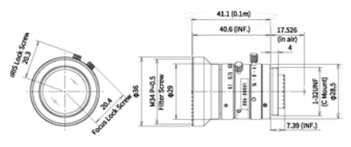


Mega-Pixel Machine Vision Lenses

MA23F08V

FFMP 2.74µm Imager Size 2/3 1/1.7 1/1.8 1/2 1/4

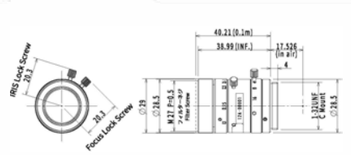
Imager Size		2/3	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		8mm	Filter Size		M34 P=0.5mm
Aperture Range		F/2.4 - 16	Overall Length		41.1mm
Focus Range		0.1m - ∞	Weight		84g
Field of View Angle (Horizontal × Vertical)	2/3 (1:1)	53.1°× 53.1°	Remarks		RoHs
	(4:3)	58.9°× 45.5°			



MA23F12V

FFMP 2.74µm Imager Size 2/3 1/1.7 1/1.8 1/2 1/4

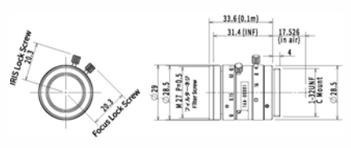
Imager Size		2/3	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		12mm	Filter Size		M27 P=0.5mm
Aperture Range		F/2.4 - 16	Overall Length		40.21mm
Focus Range		0.1m - ∞	Weight		69g
Field of View Angle (Horizontal× Vertical)	2/3 (1:1)	36.0°× 36.0°	Remarks		RoHs
	(4:3)	40.2°× 30.6°			



MA23F16V

FFMP 2.74µm Imager Size 2/3 1/1.7 1/1.8 1/2 1/4

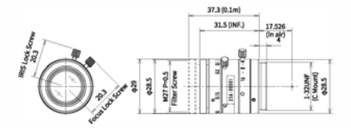
Imager Size		2/3	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		16mm	Filter Size		M27 P=0.5mm
Aperture Range		F/2.4 - 16	Overall Length		40.21mm
Focus Range		0.1m - ∞	Weight		59g
Field of View Angle (Horizontal × Vertical)	2/3 (1:1)	27.0°× 27.0°	Remarks		RoHs
	(4:3)	30.2°× 22.8°			



MA23F25V

FFMP 2.74µm Imager Size 2/3 1/1.7 1/1.8 1/2 1/4

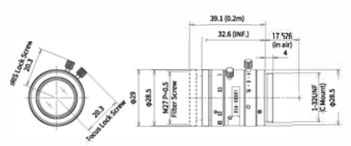
Imager Size		2/3	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		25mm	Filter Size		M27 P=0.5mm
Aperture Range		F/2.4 - 16	Overall Length		37.3mm
Focus Range		0.1m - ∞	Weight		55g
Field of View Angle (Horizontal× Vertical)	2/3 (1:1)	16.9°× 16.9°	Remarks		RoHs
	(4:3)	18.9°× 14.3°			



MA23F35V

FFMP 2.74µm Imager Size 2/3 1/1.7 1/1.8 1/2 1/4

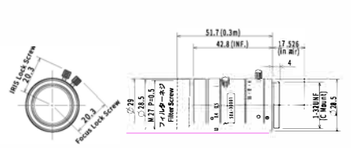
Imager Size		2/3	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		35mm	Filter Size		M27 P=0.5mm
Aperture Range		F/2.4 - 16	Overall Length		39.1mm
Focus Range		0.2m - ∞	Weight		58g
Field of View Angle (Horizontal× Vertical)	2/3 (1:1)	11.1°× 11.1°	Remarks		RoHs
	(4:3)	12.5°× 9.4°			



MA23F50V

FFMP 2.74µm Imager Size 2/3 1/1.7 1/1.8 1/2 1/4

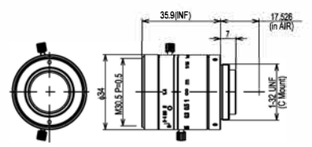
Imager Size		2/3	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		50mm	Filter Size		M27 P=0.5mm
Aperture Range		F/2.8 - 16	Overall Length		51.7mm
Focus Range		0.3m - ∞	Weight		74g
Field of View Angle (Horizontal × Vertical)	2/3 (1:1)	7.5°× 7.5°	Remarks		RoHs
	(4:3)	8.4°× 6.4°			



23FM16SP

FFMP 4.0µm Imager Size 2/3 1/1.8 1/2 1/4

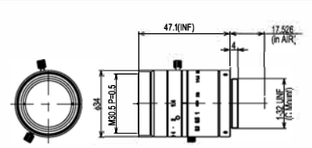
Imager Size		2/3	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		16mm	Filter Size		M30.5 P=0.5mm
Aperture Range		F/1.4 - 22	Overall Length		43mm
Focus Range		0.15m - ∞	Weight		80g
Field of View Angle (Horizontal × Vertical)	2/3	30.9°×23.4°	Remarks		RoHs
	1/2	22.7°×17.1°			
	1/3	17.1°×12.9°			



23FM25SP

FFMP 4.0µm Imager Size 2/3 1/1.8 1/2 1/4

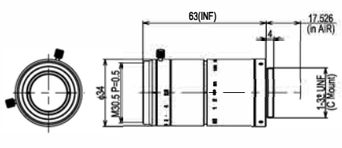
Imager Size		2/3	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		25mm	Filter Size		M30.5 P=0.5mm
Aperture Range		F/1.4 - 22	Overall Length		51mm
Focus Range		0.15m - ∞	Weight		103g
Field of View Angle (Horizontal × Vertical)	2/3	20.0°×15.1°	Remarks		RoHs
	1/2	14.6°×11.0°			
	1/3	11.0°×8.2°			



23FM50SP

FFMP 4.0µm Imager Size 2/3 1/1.8 1/2 1/4

Imager Size		2/3	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		50mm	Filter Size		M30.5 P=0.5mm
Aperture Range		F/2.8 - 32	Overall Length		67mm
Focus Range		0.2m - ∞	Weight		117g
Field of View Angle (Horizontal× Vertical)	2/3	10.1°×7.6°	Remarks		RoHs
	1/2	7.3°×5.5°			
	1/3	5.5°×4.1°			



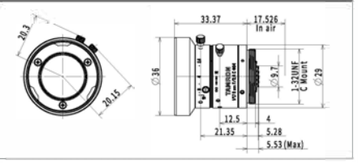
FFMP Flat-Field Mega-Pixel 2.74µm Supports 2.74µm Sensor 4.0µm Supports 4.0µm Sensor RoHs RoHs Compatible

Mega-Pixel Machine Vision Lenses

M117FM06

FFMP | 2.4μm | Imager Size: 2/3 1/1.7 1/1.8 1/2 1/4

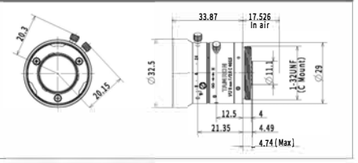
Imager Size		1/1.7	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		6mm	Filter Size		M34 P=0.5mm
Aperture Range		F/2.4 - 16	Overall Length		33.37mm
Focus Range		0.1m - ∞	Weight		50g
Field of View Angle (Horizontal × Vertical)	1/1.7	65.0°× 50.5°	Remarks		RoHs
	1/1.8	64.2°× 44.9°			



M117FM08

FFMP | 2.4μm | Imager Size: 2/3 1/1.7 1/1.8 1/2 1/4

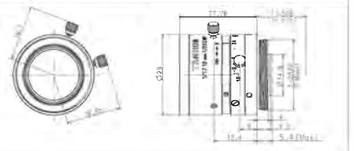
Imager Size		1/1.7	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		8mm	Filter Size		M30.5 P=0.5mm
Aperture Range		F/2.4 - 16	Overall Length		33.87mm
Focus Range		0.1m - ∞	Weight		48g
Field of View Angle (Horizontal × Vertical)	1/1.7	52.2°× 39.5°	Remarks		RoHs
	1/1.8	50.9°× 35.1°			



M117FM12

FFMP | 2.4μm | Imager Size: 2/3 1/1.7 1/1.8 1/2 1/4

Imager Size		1/1.7	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		12mm	Filter Size		M27 P=0.5mm
Aperture Range		F/2.4 - 16	Overall Length		27.78mm
Focus Range		0.1m - ∞	Weight		40g
Field of View Angle (Horizontal × Vertical)	1/1.7	34.3°× 25.9°	Remarks		RoHs
	1/1.8	33.7°× 22.9°			



M117FM16

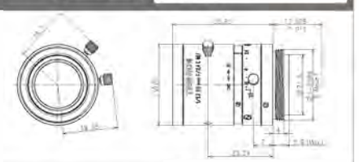
FFMP | 2.4μm | Imager Size: 2/3 1/1.7 1/1.8 1/2 1/4

Imager Size		1/1.7	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		16mm	Filter Size		M27 P=0.5mm
Aperture Range		F/2.4 - 16	Overall Length		33.78mm
Focus Range		0.1m - ∞	Weight		40g
Field of View Angle (Horizontal × Vertical)	1/1.7	26.1°× 19.7°	Remarks		RoHs
	1/1.8	25.7°× 17.4°			

M117FM25

FFMP | 2.4μm | Imager Size: 2/3 1/1.7 1/1.8 1/2 1/4

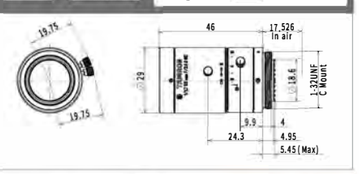
Imager Size		1/1.7	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		25mm	Filter Size		M27 P=0.5mm
Aperture Range		F/2.4 - 16	Overall Length		35.95mm
Focus Range		0.1m - ∞	Weight		45g
Field of View Angle (Horizontal × Vertical)	1/1.7	17.4°× 13.1°	Remarks		RoHs
	1/1.8	17.1°× 11.5°			



M117FM35

FFMP | 2.4μm | Imager Size: 2/3 1/1.7 1/1.8 1/2 1/4

Imager Size		1/1.7	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		35mm	Filter Size		M27 P=0.5mm
Aperture Range		F/2.4 - 16	Overall Length		46mm
Focus Range		0.1m - ∞	Weight		65g
Field of View Angle (Horizontal × Vertical)	1/1.7	12.6°× 9.5°	Remarks		RoHs
	1/1.8	12.4°× 8.4°			



M117FM50

FFMP | 2.4μm | Imager Size: 2/3 1/1.7 1/1.8 1/2 1/4

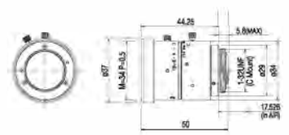
Imager Size		1/1.7	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		50mm	Filter Size		M27 P=0.5mm
Aperture Range		F/2.8 - 16	Overall Length		45.29mm
Focus Range		0.2m - ∞	Weight		60g
Field of View Angle (Horizontal × Vertical)	1/1.7	8.9°× 6.7°	Remarks		RoHs
	1/1.8	8.7°× 5.9°			

FFMP Flat-Field Mega-Pixel | 2.4μm Supports 2.4μm Sensor | 4.0μm Supports 4.0μm Sensor | RoHs RoHs Compatible

M118FM06

FFMP | 4.0μm | Imager Size: 2/3 1/1.8 1/2 1/4

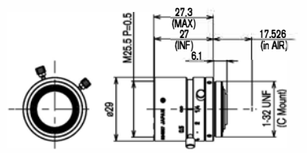
Imager Size		1/1.8	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		6mm	Filter Size		M34 P=0.5mm
Aperture Range		F/1.4 - 16	Overall Length		50mm
Focus Range		0.1m - ∞	Weight		86g
Field of View Angle (Horizontal × Vertical)	1/1.8	66.1°×50.8°	Remarks		RoHs
	1/2	58.9°×44.9°			
	1/3	44.9°×34.0°			



M118FM08

FFMP | 4.0μm | Imager Size: 2/3 1/1.8 1/2 1/4

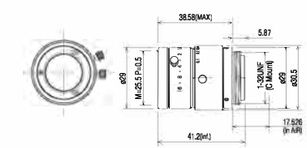
Imager Size		1/1.8	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		8mm	Filter Size		M25.5 P=0.5mm
Aperture Range		F/1.4 - 16	Overall Length		33mm
Focus Range		0.1m - ∞	Weight		44g
Field of View Angle (Horizontal × Vertical)	1/1.8	50.8°×38.6°	Remarks		RoHs
	1/2	45.0°×34.0°			
	1/3	34.0°×25.6°			



M118FM12

FFMP | 4.0μm | Imager Size: 2/3 1/1.8 1/2 1/4

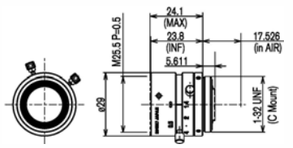
Imager Size		1/1.8	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		12mm	Filter Size		M25.5 P=0.5mm
Aperture Range		F/1.4 - 16	Overall Length		45mm
Focus Range		0.1m - ∞	Weight		57g
Field of View Angle (Horizontal × Vertical)	1/1.8	34.2°×25.8°	Remarks		RoHs
	1/2	30.2°×22.7°			
	1/3	22.7°×17.1°			



M118FM16

FFMP | 4.0μm | Imager Size: 2/3 1/1.8 1/2 1/4

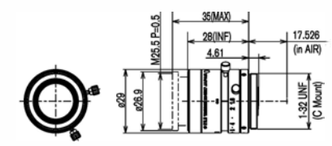
Imager Size		1/1.8	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		16mm	Filter Size		M25.5 P=0.5mm
Aperture Range		F/1.4 - 16	Overall Length		30mm
Focus Range		0.1m - ∞	Weight		39g
Field of View Angle (Horizontal × Vertical)	1/1.8	25.9°×19.5°	Remarks		RoHs
	1/2	22.8°×17.1°			
	1/3	17.1°×12.9°			



M118FM25

FFMP | 4.0μm | Imager Size: 2/3 1/1.8 1/2 1/4

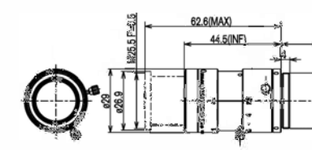
Imager Size		1/1.8	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		25mm	Filter Size		M25.5 P=0.5mm
Aperture Range		F/1.6 - 16	Overall Length		40mm
Focus Range		0.1m - ∞	Weight		39g
Field of View Angle (Horizontal × Vertical)	1/1.8	16.6°×12.5°	Remarks		RoHs
	1/2	14.6°×11.0°			
	1/3	11.0°×8.2°			



M118FM50

FFMP | 4.0μm | Imager Size: 2/3 1/1.8 1/2 1/4

Imager Size		1/1.8	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		50mm	Filter Size		M25.5 P=0.5mm
Aperture Range		F/2.8 - 22	Overall Length		67mm
Focus Range		0.2m - ∞	Weight		52g
Field of View Angle (Horizontal × Vertical)	1/1.8	8.3°×6.2°	Remarks		RoHs
	1/2	7.3°×5.5°			
	1/3	5.5°×4.1°			

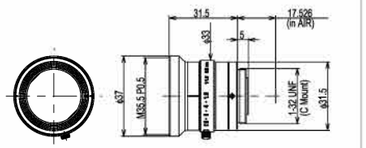


Machine Vision Lenses

22HA

SD | Imager Size 2/3 1/1.8 1/2 1/4

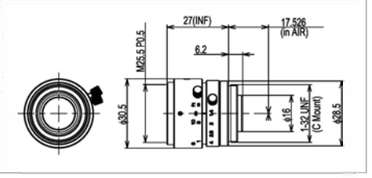
Imager Size		2/3	Operation	Focus	-
Mount Type		C		Iris	Manual with Lock
Focal Length		6.5mm	Filter Size		M35.5 P=0.5mm
Aperture Range		F/1.8 - Close	Overall Length		37mm
Focus Range		1.5m - ∞	Weight		60g
Field of View Angle (Horizontal × Vertical)	2/3	71.6°×55.5°	Remarks		RoHs
	1/2	53.9°×41.0°			
	1/3	41.0°×31.0°			



219HB

SD | Imager Size 2/3 1/1.8 1/2 1/4

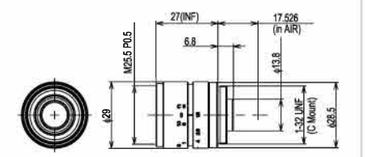
Imager Size		2/3	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		8mm	Filter Size		M25.5 P=0.5mm
Aperture Range		F/1.4 - 16	Overall Length		33mm
Focus Range		0.26m - ∞	Weight		48g
Field of View Angle (Horizontal × Vertical)	2/3	59.3°×45.2°	Remarks		RoHs
	1/2	43.6°×33.1°			
	1/3	33.1°×25.0°			



25HA

SD | Imager Size 2/3 1/1.8 1/2 1/4

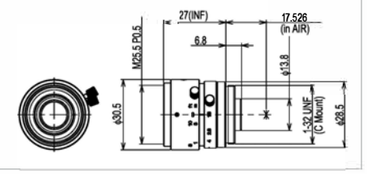
Imager Size		2/3	Operation	Focus	Manual
Mount Type		C		Iris	Manual
Focal Length		12mm	Filter Size		M25.5 P=0.5mm
Aperture Range		F/1.8 - 16	Overall Length		34mm
Focus Range		0.26m - ∞	Weight		40g
Field of View Angle (Horizontal × Vertical)	2/3	40.9°×30.9°	Remarks		RoHs
	1/2	30.0°×22.4°			
	1/3	22.4°×16.6°			



25HB

SD | Imager Size 2/3 1/1.8 1/2 1/4

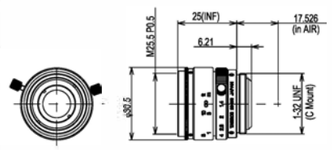
Imager Size		2/3	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		12mm	Filter Size		M25.5 P=0.5mm
Aperture Range		F/1.8 - 16	Overall Length		34mm
Focus Range		0.26m - ∞	Weight		46g
Field of View Angle (Horizontal × Vertical)	2/3	40.9°×30.9°	Remarks		RoHs
	1/2	30.0°×22.4°			
	1/3	22.4°×16.6°			



17HF

SD | Imager Size 2/3 1/1.8 1/2 1/4

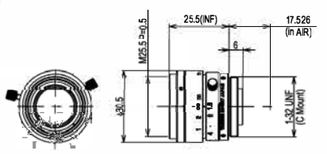
Imager Size		2/3	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		16mm	Filter Size		M25.5 P=0.5mm
Aperture Range		F/1.4 - 16	Overall Length		31mm
Focus Range		0.29m - ∞	Weight		48g
Field of View Angle (Horizontal × Vertical)	2/3	30.9°×23.2°	Remarks		RoHs
	1/2	22.5°×16.9°			
	1/3	16.9°×12.7°			



20HC

SD | Imager Size 2/3 1/1.8 1/2 1/4

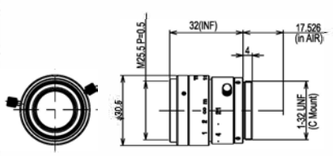
Imager Size		2/3	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		25mm	Filter Size		M25.5 P=0.5mm
Aperture Range		F/1.6 - 16	Overall Length		32mm
Focus Range		0.21m - ∞	Weight		40g
Field of View Angle (Horizontal × Vertical)	2/3	20.0°×15.0°	Remarks		RoHs
	1/2	14.6°×11.0°			
	1/3	11.0°×8.2°			



35HB

SD | Imager Size 2/3 1/1.8 1/2 1/4

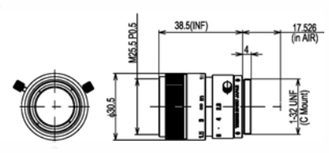
Imager Size		2/3	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		35mm	Filter Size		M25.5 P=0.5mm
Aperture Range		F/2.1 - 22	Overall Length		36mm
Focus Range		0.3m - ∞	Weight		44g
Field of View Angle (Horizontal × Vertical)	2/3	14.3°×10.8°	Remarks		RoHs
	1/2	10.4°×7.8°			
	1/3	7.8°×5.9°			



21HC

SD | Imager Size 2/3 1/1.8 1/2 1/4

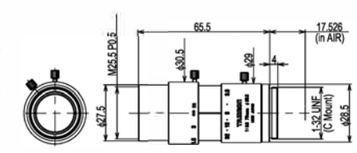
Imager Size		2/3	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		50mm	Filter Size		M25.5 P=0.5mm
Aperture Range		F/2.8 - 22	Overall Length		43mm
Focus Range		0.44m - ∞	Weight		52g
Field of View Angle (Horizontal × Vertical)	2/3	10.0°×7.5°	Remarks		RoHs
	1/2	7.3°×5.5°			
	1/3	5.5°×4.1°			



1A1HB

SD | Imager Size 2/3 1/1.8 1/2 1/4

Imager Size		2/3	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		75mm	Filter Size		M25.5 P=0.5mm
Aperture Range		F/3.9 - 32	Overall Length		70mm
Focus Range		0.5m - ∞	Weight		68g
Field of View Angle (Horizontal × Vertical)	2/3	6.9°×5.2°	Remarks		RoHs
	1/2	5.0°×3.5°			
	1/3	3.5°×2.5°			



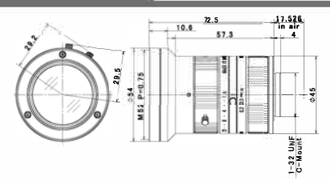
SD Standard Definition RoHs RoHs Compatible

SWIR Lenses for Industrial Applications

SMA11F12

FFMP 5.0μm Imager Size 1 1/1.8 1/2

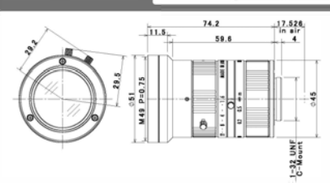
Imager Size		1	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		12mm	Filter Size		M52 P=0.75mm
Aperture Range		F/1.6 - 22	Overall Length		72.5mm
Focus Range		0.2m - ∞	Weight		260g
Field of View Angle (Horizontal × Vertical)	1	57.9°× 44.6°	Remarks		RoHs
	1/2	30.2°× 24.3°			



SMA11F16

FFMP 5.0μm Imager Size 1 1/1.8 1/2

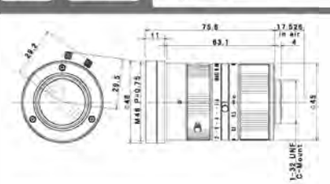
Imager Size		1	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		16mm	Filter Size		M49 P=0.75mm
Aperture Range		F/1.6 - 22	Overall Length		74.2mm
Focus Range		0.2m - ∞	Weight		260g
Field of View Angle (Horizontal × Vertical)	1	44.1°× 33.7°	Remarks		RoHs
	1/2	22.7°× 18.1°			



SMA11F25

FFMP 5.0μm Imager Size 1 1/1.8 1/2

Imager Size		1	Operation	Focus	Manual with Lock
Mount Type		C		Iris	Manual with Lock
Focal Length		25mm	Filter Size		M46 P=0.75mm
Aperture Range		F/1.6 - 22	Overall Length		75.6mm
Focus Range		0.2m - ∞	Weight		260g
Field of View Angle (Horizontal × Vertical)	1	29.1°× 21.9°	Remarks		RoHs
	1/2	14.7°× 11.7°			



SD Standard Definition RoHs RoHs Compatible

SWIR Lenses

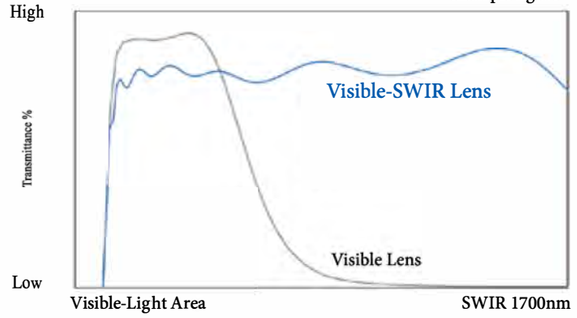
Fixed-Focal Lenses

< Industrial Lenses for Various Industry Applications including Food, Agriculture, and Science >
Tamron SWIR lenses Covering a Wide Spectral Band from Visible-Light to SWIR(Shortwave IR) Band

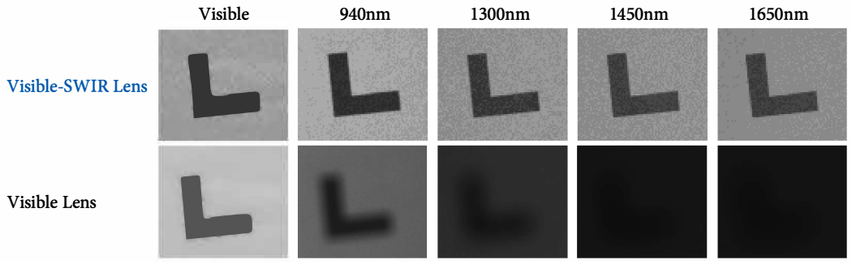
1. Industry-Leading Spectrum Transmittance (Visible-Light ~ SWIR Band) Tamron' New Proprietary Lens Coating Technology

Visible lenses are optimized to maximize the spectral transmittance in the visible-light band, and images in the SWIR band can be affected by insufficient transmittance, often resulting in defocused artifacts in image quality.
Tamron has developed a new optical technology and lens coating technology that makes lenses compatible with a broadband-spectrum band covering the visible-light and the SWIR band.

example figure

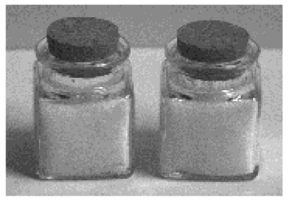
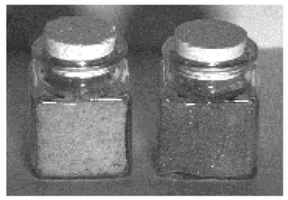


2. Significant Reduction of Focus-Shift in between the Visible-Light and the SWIR Bands (~1700nm)



Tamron SWIR Lenses feature high spectral transmittance over a wide band from the visible-light to the SWIR bands while the focus-shift is suppressed to an absolute minimum over the entire band.

3. Sample Image

Visible light	SWIR band (Using a SWIR camera)
Sample Image	
	
Salt Sugar	Salt Sugar

Accessories

Special Accessories for Machine Vision Lenses

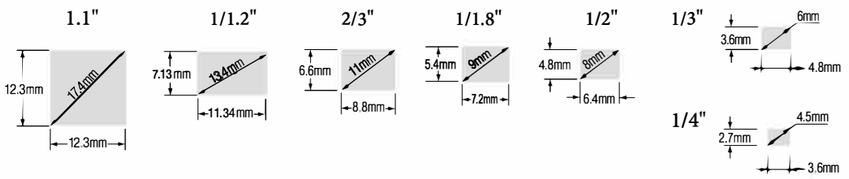
Extension Ring	MR-SET	7 Sets (0.5mm, 1mm, 2mm, 5mm, 10mm, 20mm, 40mm)
Filter for Protection	25.5-NO	Ø25.5mm
	30.5-NO	Ø30.5mm
	35.5-NO	Ø35.5mm
Polarizer Filter	25.5-PL	Ø25.5mm
	30.5-PL	Ø30.5mm
	35.5-PL	Ø35.5mm

Special Accessories for Security Lenses

C-CS Convert Adapter	C-CS Adapter

Remarks

Imager Size



- 1.1" lenses can also be used with 1.1", 1", 1/1.2", 2/3", 1/1.8", 1/2", 1/2.5", 1/2.7", 1/2.8", 1/3" & 1/4" Imager cameras.
  1/1.2" lenses can also be used with 2/3", 1/1.8", 1/2", 1/2.5", 1/2.7", 1/2.8", 1/3" & 1/4" Imager cameras.
  2/3" lenses can also be used with 1/1.8", 1/2", 1/2.5", 1/2.7", 1/2.8", 1/3" & 1/4" Imager cameras.
  1/1.8" lenses can also be used with 1/2", 1/2.5", 1/2.7", 1/2.8", 1/3" & 1/4" Imager cameras.
  1/2" lenses can also be used with 1/2.5", 1/2.7", 1/2.8", 1/3" & 1/4" Imager cameras.
  1/3" lenses can also be used with 1/4" Imager cameras.
- When you fit C-Mount lenses with CS-Mount cameras, please use the C-CS adapter.
- The "Field of View Angle" in the data sheets shows the data when the lens is used with a camera with the indicated imager size. When other cameras with different imager sizes are used, please refer to the following datum:

1.1" Lens	1/1.2" Camera	0.77× against the Specified Angle of View
	2/3" Camera	0.63× against the Specified Angle of View
	1/2" Camera	0.46× against the Specified Angle of View
	1/3" Camera	0.34× against the Specified Angle of View
	1/4" Camera	0.26× against the Specified Angle of View
1/1.2" Lens	2/3" Camera	0.82× against the Specified Angle of View
	1/2" Camera	0.6× against the Specified Angle of View
	1/3" Camera	0.45× against the Specified Angle of View
	1/4" Camera	0.34× against the Specified Angle of View

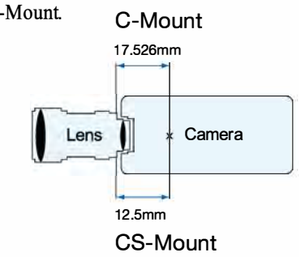
2/3" Lens	1/2" Camera	0.73× against the Specified Angle of View
	1/3" Camera	0.55× against the Specified Angle of View
	1/4" Camera	0.41× against the Specified Angle of View
1/1.8" Lens	1/2" Camera	0.89× against the Specified Angle of View
	1/3" Camera	0.67× against the Specified Angle of View
	1/4" Camera	0.5× against the Specified Angle of View
1/2" Lens	1/3" Camera	0.75× against the Specified Angle of View
	1/4" Camera	0.56× against the Specified Angle of View
1/3" Lens	1/4" Camera	0.75× against the Specified Angle of View

Terminology Explanation

Mount Type

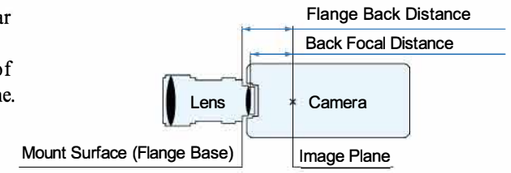
Correspond to the standard mount type of the camera which may be either C-Mount or CS-Mount. The characteristics are as follows.

Flange Back Distance	C-Mount	17.526mm
	CS-Mount	12.5mm



Flange Back Distance & Back Focal Distance

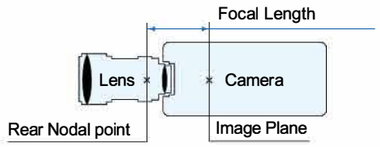
- Flange Back Distance: Distance between the mechanical rear end of the mount surface and the image plane.
- Back Focal Distance: Distance between the physical end of the lens element (side closest to the camera) and the image plane.



Focal Length

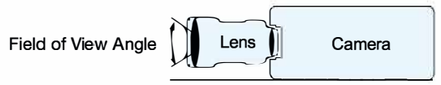
Distance between the rear nodal point and the focal point (Image Plane) on the optical axis.

*The smaller number, the wider the field of view angle.
The bigger number, the narrower the field of view angle.



Field of View Angle

Angle of the captured image as it relates to the given image size. Field-of-view angle will vary, even when using the same lens, depending on the imager size of the camera in use. Details can be found in this catalog.



Aperture Range

The F-number is used to indicate the speed of the lens from full open aperture to minimum aperture. The F-number is calculated using the following formula:

$$F/No. = \frac{\text{Focal Length}}{\text{Effective Diameter of the lens}}$$

*Smaller F-numbers equal faster/brighter lenses.

Focusing Range

Indicate the shooting range from the Mimimum Object Distance (MOD) to infinity. Generally, the range is measured from the physical end of the lens to the object.

About the Tamron IP / CCTV Lens WEB SITE http://www.tamron.biz/

- Latest news concerning new IP/CCTV lens models and trading shows.
- Download the catalog (PDF), specification sheets (PDF).
- Get technical information and news about discontinude products.