

## IP/CCTV LENSES

- Mega-Pixel Vari-Focal Lenses
- Vari-Focal Lenses
- Fixed-Focal Lenses
- Mega-Pixel Machine Vision Lenses
- Machine Vision Lenses
- Accessories / Terminology Explanations



**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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### Management on Quality and Environment

Tamron is certified with international standards: ISO 9001 for quality and ISO14001 for environmental management at its headquarters, domestic sales offices, China plant as well as three production facilities in Aomori, Japan, and is fully committed to striving for continued and sustainable improvement at all levels and facets of its business operations.

## 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.

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# 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



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, M13VG2812IR, M13VG555IR, M13VG850IR, M13VP850IR, M13VG550IR, M13VM550, M13VG550, 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.

#### Compensation made possible by Aspherical lens



## 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.

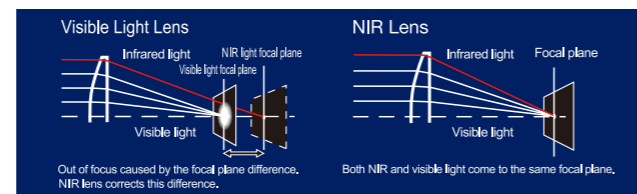
### Wide Dynamic Range

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 8mm (34.5°).



### Compatible NIR (Near-IR)

Tamron's 1/3" format 2.2mm, 2.8mm, 4mm, 6mm and 8mm lenses are precisely compatible with day/night cameras since their chromatic aberration compensation is expanded to the NIR range.

## Mega-Pixel 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.

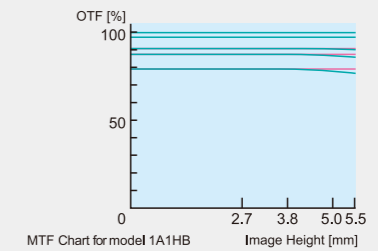


#### Minimized Distortion

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.



#### 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



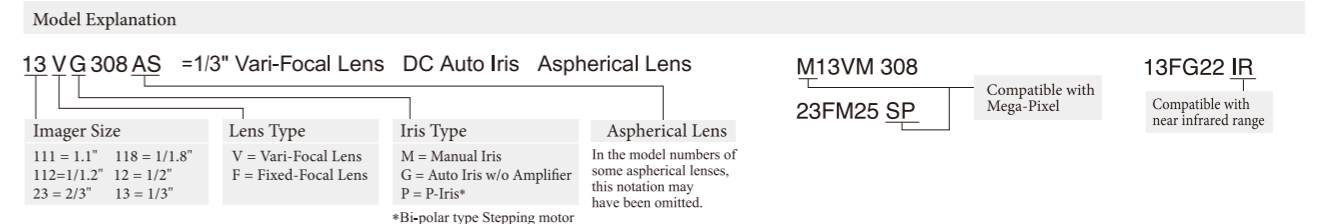
Model	page	2.2mm	2.4mm	2.8mm	5mm	8mm	12mm	50mm	100mm
<b>8MP</b> M117VG3817IR	7				×4.5 3.8 - 17mm			FFMP Full HD IR	
M118VM413IRCS	7								
M118VM413IR	7								
M118VG413IRCS	8				×3.2 4.0 - 13mm			FFMP Full HD IR	
M118VG413IR	8								
M118VP413IRCS	10								
M118VP413IR	10								
M118VG1250IR	7								
M118VP1250IR	10				×4.1 12 - 50mm			FFMP Full HD IR	
M13VG2713IR	8			×4.8 2.7 - 13mm				FFMP Full HD IR	
M13VG2812IR	8			×4.2 2.8 - 12mm				FFMP Full HD IR	
M13VM288IR	7			×2.8 2.8 - 8mm				FFMP Full HD IR	
M13VG288IR	8								
M13VP288IR	10								
M13VG555IR	9			×11 5 - 55mm				FFMP Full HD IR	
M13VG850IR	9			×6.2 8 - 50mm				FFMP Full HD IR	
M13VP850IR	10								
M13VG550IR	9			×10 5 - 50mm				FFMP Full HD IR	
<b>3MP</b> M12VM412	11			×3 4.0 - 12mm				FFMP HD	
M12VG412	11								
M13VM550	11			×10 5 - 50mm				FFMP HD	
M13VG550	11								
<b>2MP</b> M13VG550IR	9			×10 5 - 50mm				FFMP Full HD IR	
<b>1MP</b> M12VM412	11			×3 4.0 - 12mm				FFMP HD	
M12VG412	11								
M13VM550	11			×10 5 - 50mm				FFMP HD	
M13VG550	11								
<b>Vari-Focal Lenses</b> 13VG2812ASII	14			×4.2 2.8 - 12mm				SD	
13VM308ASIRII	12			×2.6 3.0 - 8mm				SD IR	
13VG308ASIRII	13								
12VM412ASIR	12			×3 4.0 - 12mm				SD IR	
12VG412ASIR	13								
13VM550ASII	14			×10 5 - 50mm				SD	
13VG550ASII	14								
13VG1040ASIR	13			×4 10 - 40mm				SD IR	
12VM1040ASIR	12								
12VG1040ASIR	13								
13VM20100AS	14			×5 20 - 100mm				SD	
13VG20100AS	14								
<b>Fixed-Focal Lenses</b> 13FM22IR	15	●	SD IR						
13FG22IR	16	●	SD IR						
13FM28IR	15		●	SD IR					
13FG28IR	16		●	SD IR					
13FM04IR	15			●	SD IR				
13FG04IR	16			●	SD IR				
13FM06IR	15			●	SD IR				
13FG06IR	16			●	SD IR				
13FM08IR	15			●	SD IR				
13FG08IR	16			●	SD IR				

**FFMP** Flat-Field Mega-Pixel    **Full HD** Full High Definition    **HD** High Definition    **SD** Standard Definition    **IR** NIR (Near-IR)  
**2.5µm** Supports 2.5µm Sensor    **3.1µm** Supports 3.1µm Sensor    **3.5µm** Supports 3.5µm Sensor    **4.0µm** Supports 4.0µm Sensor    **5.86µm** Supports 5.86µm Sensor

\*Angle of view images are illustrative examples.

Model	page	2.2mm	2.4mm	2.8mm	5mm	8mm	12mm	50mm	100mm
M111FM08	17					●	FFMP 3.1µm		
M111FM16	17						●	FFMP 3.1µm	
M111FM25	17						●	FFMP 3.1µm	
M111FM50	17							●	FFMP 3.1µm
M112FM06	18				●	FFMP 5.86µm			
M112FM08	18					●	FFMP 5.86µm		
M112FM12	18						●	FFMP 5.86µm	
M112FM16	18						●	FFMP 5.86µm	
M112FM25	19						●	FFMP 5.86µm	
M112FM35	19						●	FFMP 5.86µm	
M112FM50	19							●	FFMP 5.86µm
M112FM75	19							●	FFMP 5.86µm
M23FM06	20				●	FFMP 2.5µm			
M23FM08	20					●	FFMP 2.5µm		
M23FM12	20						●	FFMP 2.5µm	
M23FM16	20						●	FFMP 2.5µm	
M23FM25	20						●	FFMP 2.5µm	
M23FM35	21						●	FFMP 2.5µm	
M23FM50	21							●	FFMP 2.5µm
M118FM06	22				●	FFMP 4.0µm			
M118FM08	22					●	FFMP 4.0µm		
M118FM12	22						●	FFMP 4.0µm	
M118FM16	22						●	FFMP 4.0µm	
M118FM25	22						●	FFMP 4.0µm	
M118FM50	22							●	FFMP 4.0µm
23FM16SP	21						●	FFMP 4.0µm	
23FM25SP	21						●	FFMP 4.0µm	
23FM50SP	21							●	FFMP 4.0µm
<b>Machine Vision Lenses</b> 22HA	23					●	SD		
219HB	23						●	SD	
25HA	23						●	SD	
25HB	23						●	SD	
17HD	24						●	SD	
17HF	24						●	SD	
20HC	24						●	SD	
35HB	24						●	SD	
21HC	24						●	SD	
1A1HB	24							●	SD

**Model Explanation** | Tamron IP / CCTV lens model numbers are very simple. Please see the following explanation of model number nomenclature.



# Mega-Pixel Vari-Focal Lenses Day / Night

## Manual Iris

**M118VM413IRCS** 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	Overall Length	Iris	Manual with Lock	
	Aperture Range	F/1.5 - Close		Weight	98mm	
	Zoom Ratio	×3.2	Weight	172g		
	Focus Range	0.3m - ∞		Remarks		
	Field of View Angle (Horizontal × Vertical)	1/1.8W	105.4°×77.6°	RoHS		
		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	Overall Length	Iris	Manual with Lock	
	Aperture Range	F/1.5 - Close		Weight	92mm	
	Zoom Ratio	×3.2	Weight	167g		
	Focus Range	0.3m - ∞		Remarks		
	Field of View Angle (Horizontal × Vertical)	1/1.8W	105.4°×77.6°	RoHS		
		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	Overall Length	Iris	Manual with Lock	
	Aperture Range	F/1.2 - Close		Weight	58mm	
	Zoom Ratio	×2.8	Weight	61g		
	Focus Range	0.3m - ∞		Remarks		
	Field of View Angle (Horizontal × Vertical)	1/2.7W	124.3°×65.2°	RoHS		
		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°				

**M117VG3817IR** FFMP Full HD IR ASL Imager Size 1/1.7 1/1.8 1/2 1/3

DC Auto Iris

8MP	Imager Size	1/1.7	Operation	Focus	Manual with Lock	
	Mount Type	CS		Zoom	Manual with Lock	
	Focal Length	3.8 - 17mm	Overall Length	Iris	DC Auto Iris	
	Aperture Range	F/1.4 - Close		Operating Voltage	Open 4.0V	
	Zoom Ratio	×4.5	Overall Length	Close 0.5V	93mm	
	Focus Range	0.3m - ∞		Weight	180g	
	Field of View Angle (Horizontal × Vertical)	1/1.7W	121.2°×67.2°	RoHS		
		1/1.7T	28.1°×16.1°			
		1/1.8W	114.2°×63.5°			
		1/1.8T	26.6°×15.2°			
1/2W		91.7°×67.9°				
1/2T		29.0°×21.8°				

**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	Overall Length	Iris	DC Auto Iris	
	Aperture Range	F/1.4 - F/360		Operating Voltage	Open 4.0V	
	Zoom Ratio	×4.1	Overall Length	Close 0.5V	84mm	
	Focus Range	1.0m - ∞		Weight	130g	
	Field of View Angle (Horizontal × Vertical)	1/1.8W	34.0°×25.5°	RoHS		
		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°				

## 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	Overall Length	Iris	DC Auto Iris	
	Aperture Range	F/1.5 - Close		Operating Voltage	Open 3.0V	
	Zoom Ratio	×3.2	Overall Length	Close 0.5V	98mm	
	Focus Range	0.3m - ∞		Weight	172g	
	Field of View Angle (Horizontal × Vertical)	1/1.8W	105.4°×77.6°	RoHS		
		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°				

**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	Overall Length	Iris	DC Auto Iris	
	Aperture Range	F/1.5 - Close		Operating Voltage	Open 3.0V	
	Zoom Ratio	×3.2	Overall Length	Close 0.7V	92mm	
	Focus Range	0.3m - ∞		Weight	167g	
	Field of View Angle (Horizontal × Vertical)	1/1.8W	105.4°×77.6°	RoHS		
		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°				

**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	Overall Length	Iris	DC Auto Iris	
	Aperture Range	F/1.4 - 360		Operating Voltage	Open 4.0V	
	Zoom Ratio	×4.8	Overall Length	Close 0.5V	71mm	
	Focus Range	0.3m - ∞		Weight	90g	
	Field of View Angle (Horizontal × Vertical)	1/2.7W	125.1°×66.1°	RoHS		
		1/2.7T	26.7°×15.2°			
		1/3W	101.1°×73.9°			
		1/3T	22.3°×16.8°			
1/4W		72.9°×53.9°				
1/4T		26.8°×20.1°				

**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	Overall Length	Iris	DC Auto Iris	
	Aperture Range	F/1.2 - 360		Operating Voltage	Open 4.0V	
	Zoom Ratio	×2.8	Overall Length	Close 0.7V	58mm	
	Focus Range	0.3m - ∞		Weight	70g	
	Field of View Angle (Horizontal × Vertical)	1/2.7W	124.3°×65.2°	RoHS		
		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°				

**M13VG2812IR** 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 - 12mm	Overall Length	Iris	DC Auto Iris	
	Aperture Range	F/1.4 - 360		Operating Voltage	Open 4.0V	
	Zoom Ratio	×4.2	Overall Length	Close 0.5V	72mm	
	Focus Range	0.3m - ∞		Weight	70g	
	Field of View Angle (Horizontal × Vertical)	1/2.7W	107°×79.3°	RoHS		
		1/2.7T	26.4°×19.8°			
		1/3W	96.8°×71.6°			
		1/3T	24.0°×18.0°			
1/4W		71.6°×53.4°				
1/4T		18.0°×13.5°				

# 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	Operation	Focus	Manual with Lock
Mount Type	CS	Zoom	Zoom	Manual with Lock
Focal Length	5 - 50mm	Iris	DC Auto Iris	
Aperture Range	F/1.6 - 360	Operating Voltage	Open 4.0V	
Zoom Ratio	×10	Close 0.5V		
Focus Range	1.0m - ∞	Overall Length	81mm	
Field of View Angle (Horizontal × Vertical)	1/3W	53°×40°	Weight	104g
	1/3T	5.6°×4.2°	Remarks	RoHs
	1/4W	40°×30°		
	1/4T	4.2°×3.2°		

**M13VG555IR** 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	Zoom	Manual with Lock
Focal Length	5 - 55mm	Iris	DC Auto Iris	
Aperture Range	F/1.6 - 360	Operating Voltage	Open 4.0V	
Zoom Ratio	×11	Close 0.5V		
Focus Range	0.3m - ∞	Overall Length	74mm	
Field of View Angle (Horizontal × Vertical)	1/2.7W	61.3°×35.6°	Weight	110g
	1/2.7T	6.0°×3.5°	Remarks	RoHs
	1/3 W	56.2°×32.4°		
	1/3 T	5.5°×3.2°		

**M13VG850IR** 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	Zoom	Manual with Lock
Focal Length	8 - 50mm	Iris	DC Auto Iris	
Aperture Range	F/1.6 - 360	Operating Voltage	Open 4.0V	
Zoom Ratio	×6.2	Close 0.5V		
Focus Range	2.0m - ∞	Overall Length	78mm	
Field of View Angle (Horizontal × Vertical)	1/2.7W	40.2°×22.6°	Weight	106g
	1/2.7T	6.6°×3.8°	Remarks	RoHs
	1/3 W	33.5°×25.1°		
	1/3 T	5.6°×4.2°		

## 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	Operation	Focus	Manual with Lock
Mount Type	CS	Zoom	Zoom	Manual with Lock
Focal Length	12 - 50mm	Iris	P-Iris	
Aperture Range	F/1.4 - Close	Operating Voltage	3 - 5V	
Zoom Ratio	×4.1	Overall Length	84mm	
Focus Range	1.0m - ∞	Weight	128g	
Field of View Angle (Horizontal × Vertical)	1/1.8W	34.0°×25.5°	Remarks	RoHs
	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°		

**M118VP413IRCS** 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	Zoom	Manual with Lock
Focal Length	4.0 - 13mm	Iris	P-Iris	
Aperture Range	F/1.5 - Close	Operating Voltage	3 - 5V	
Zoom Ratio	×3.2	Overall Length	98mm	
Focus Range	0.3m - ∞	Weight	172g	
Field of View Angle (Horizontal × Vertical)	1/1.8W	105.4°×77.6°	Remarks	RoHs
	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°		

**M118VP413IR** 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	Zoom	Manual with Lock
Focal Length	4.0 - 13mm	Iris	P-Iris	
Aperture Range	F/1.5 - Close	Operating Voltage	3 - 5V	
Zoom Ratio	×3.2	Overall Length	92mm	
Focus Range	0.3m - ∞	Weight	167g	
Field of View Angle (Horizontal × Vertical)	1/1.8W	105.4°×77.6°	Remarks	RoHs
	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°		

**M13VP288IR** 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	Zoom	Manual with Lock
Focal Length	2.8 - 8mm	Iris	P-Iris	
Aperture Range	F/1.2 - Close	Operating Voltage	3 - 5V	
Zoom Ratio	×2.8	Overall Length	58mm	
Focus Range	0.3m - ∞	Weight	68g	
Field of View Angle (Horizontal × Vertical)	1/2.7W	124.3°×65.2°	Remarks	RoHs
	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°		

**M13VP850IR** 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	Zoom	Manual with Lock
Focal Length	8 - 50mm	Iris	P-Iris	
Aperture Range	F/1.6 - Close	Operating Voltage	3 - 5V	
Zoom Ratio	×6.2	Overall Length	78mm	
Focus Range	2.0m - ∞	Weight	106g	
Field of View Angle (Horizontal × Vertical)	1/2.7W	40.2°×22.6°	Remarks	RoHs
	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°		

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

**M13VM550** FFMP HD ASL Imager Size 2/3 1/2 1/3 1/4

Imager Size	1/3		Operation	Focus	Manual with Lock
	Mount Type			Zoom	Manual with Lock
Focal Length	5 - 50mm		Iris	Manual with Lock	64mm
Aperture Range	F/1.4 - Close		Overall Length		
Zoom Ratio	×10		Weight	64g	
Focus Range	1m - ∞		Remarks	RoHs	
Field of View Angle (Horizontal × Vertical)	1/3 W	53.8°×40.3°			
	1/3 T	5.5°×4.2°			
	1/4 W	40.3°×30.2°			
	1/4 T	4.2°×3.1°			

**M12VM412** FFMP HD ASL Imager Size 2/3 1/2 1/3 1/4

Imager Size	1/2		Operation	Focus	Manual with Lock
	Mount Type			Zoom	Manual with Lock
Focal Length	4.0 - 12mm		Iris	Manual with Lock	63mm
Aperture Range	F/1.4 - Close		Overall Length		
Zoom Ratio	×3		Weight	58g	
Focus Range	0.3m - ∞		Remarks	RoHs	
Field of View Angle (Horizontal × Vertical)	1/2 W	93.9°×68.8°			
	1/2 T	31.4°×23.6°			
	1/3 W	68.8°×51.0°			
	1/3 T	23.6°×17.7°			

## DC Auto Iris

**M13VG550** FFMP HD ASL Imager Size 2/3 1/2 1/3 1/4

Imager Size	1/3		Operation	Focus	Manual with Lock
	Mount Type			Zoom	Manual with Lock
Focal Length	5 - 50mm		Iris	DC Auto Iris	64mm
Aperture Range	F/1.4 - 360		Operating Voltage	Open 4.0V	
Zoom Ratio	×10		Close 0.7V	Overall Length	64mm
Focus Range	1m - ∞		Weight		
Field of View Angle (Horizontal × Vertical)	1/3 W	53.8°×40.3°	Remarks	RoHs	
	1/3 T	5.5°×4.2°			
	1/4 W	40.3°×30.2°			
	1/4 T	4.2°×3.1°			

**M12VG412** FFMP HD ASL Imager Size 2/3 1/2 1/3 1/4

Imager Size	1/2		Operation	Focus	Manual with Lock
	Mount Type			Zoom	Manual with Lock
Focal Length	4.0 - 12mm		Iris	DC Auto Iris	63mm
Aperture Range	F/1.4 - 360		Operating Voltage	Open 3.0V	
Zoom Ratio	×3		Close 0.5V	Overall Length	63mm
Focus Range	0.3m - ∞		Weight		
Field of View Angle (Horizontal × Vertical)	1/2 W	93.9°×68.8°	Remarks	RoHs	
	1/2 T	31.4°×23.6°			
	1/3 W	68.8°×51.0°			
	1/3 T	23.6°×17.7°			

# 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			Zoom	Manual with Lock
Focal Length	3.0 - 8mm		Iris	Manual with Lock	47mm
Aperture Range	F/1.0 - Close		Overall Length		
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°			
	1/4 T	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			Zoom	Manual with Lock
Focal Length	4.0 - 12mm		Iris	Manual with Lock	62mm
Aperture Range	F/1.2 - Close		Overall Length		
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			Zoom	Manual with Lock
Focal Length	10 - 40mm		Iris	Manual with Lock	66mm
Aperture Range	F/1.4 - Close		Overall Length		
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°			

# Vari-Focal Lenses Day / Night

## 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	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°		
	1/4 T	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	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°		

**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	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	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	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°

**13VM20100AS** 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	Zoom	Manual with Lock
Focal Length	20 - 100mm	Iris	Manual with Lock	
Aperture Range	F/1.6 - Close	Overall Length	114mm	
Zoom Ratio	×5	Weight	148g	
Focus Range	1.0m - ∞	Remarks	RoHs	
Field of View Angle (Horizontal × Vertical)	1/3 W			13.6°×10.2°
	1/3 T			2.8°×2.1°
	1/4 W			10.2°×7.6°

## 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	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	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°		

**13VG20100AS** 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	Zoom	Manual with Lock
Focal Length	20 - 100mm	Iris	DC Auto Iris	
Aperture Range	F/1.6 - 360	Operating Voltage	Open 4.0V	
Zoom Ratio	×5	Close 0.5V		
Focus Range	1.0m - ∞	Overall Length	114mm	
Field of View Angle (Horizontal × Vertical)	1/3 W	13.6°×10.2°	Weight	156g
	1/3 T	2.8°×2.1°	Remarks	RoHs
	1/4 W	10.2°×7.6°		
	1/4 T	2.1°×1.6°		


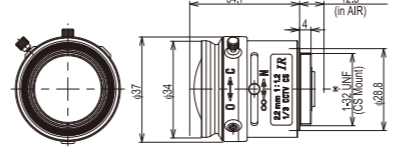


# Fixed-Focal Lenses Day / Night

## Manual Iris


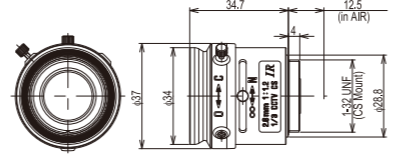
**13FM22IR** SD IR Imager Size 2/3 1/2 1/3 1/4

Imager Size	1/3	Operation	Focus	Manual with Lock
	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°			


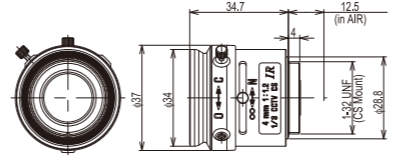
**13FM28IR** SD IR Imager Size 2/3 1/2 1/3 1/4

Imager Size	1/3	Operation	Focus	Manual with Lock
	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°			


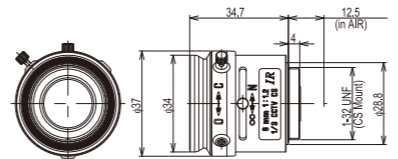
**13FM04IR** SD IR Imager Size 2/3 1/2 1/3 1/4

Imager Size	1/3	Operation	Focus	Manual with Lock
	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°			


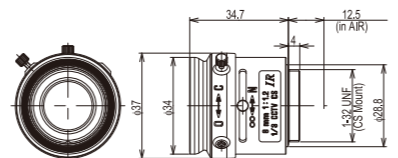
**13FM06IR** SD IR Imager Size 2/3 1/2 1/3 1/4

Imager Size	1/3	Operation	Focus	Manual with Lock
	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°			

**13FM08IR** SD IR Imager Size 2/3 1/2 1/3 1/4


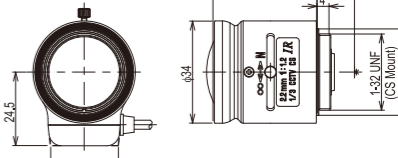
Imager Size	1/3	Operation	Focus	Manual with Lock
	CS		Iris	Manual with Lock
Focal Length	8mm	Overall Length	39mm	
Aperture Range	F/1.2 - Close	Weight	35g	
Focus Range	0.2m - ∞	Remarks	RoHs	
Field of View Angle (Horizontal * Vertical)	1/3 34.5°×25.7° 1/4 25.7°×19.2°			

## DC Auto Iris


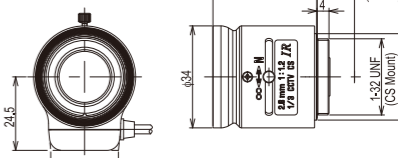
**13FG22IR** SD IR Imager Size 2/3 1/2 1/3 1/4

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


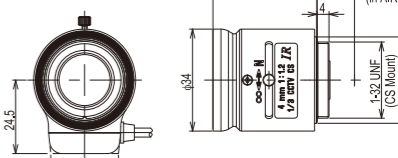
**13FG28IR** SD IR Imager Size 2/3 1/2 1/3 1/4

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


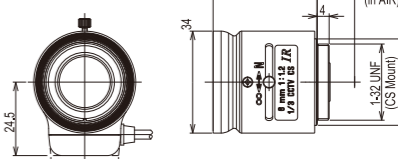
**13FG04IR** SD IR Imager Size 2/3 1/2 1/3 1/4

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


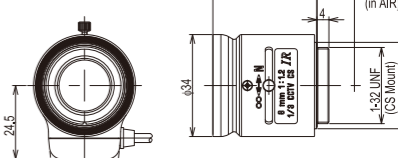
**13FG06IR** SD IR Imager Size 2/3 1/2 1/3 1/4

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

**13FG08IR** SD IR Imager Size 2/3 1/2 1/3 1/4

Imager Size	1/3	Operation	Focus	Manual with Lock
	CS		Iris	DC Auto Iris
Focal Length	8mm	Operating Voltage	Open 2.5V Close 0.5V	
Aperture Range	F/1.2 - 360	Overall Length	39mm	
Focus Range	0.2m - ∞	Weight	43g	
Field of View Angle (Horizontal * Vertical)	1/3 34.5°×25.7° 1/4 25.7°×19.2°	Remarks	RoHs	

# Mega-Pixel Machine Vision Lenses

**M111FM08** FFMP 3.1μm 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	8mm	Filter Size	M77 P=0.75mm	
Aperture Range	F/1.8 - 22	Overall Length	103mm	
Focus Range	0.3m - ∞	Weight	490g	
Field of View Angle (Horizontal * Vertical)	1.1 (1:1)	76.0°×76.0°	Remarks	RoHS
	(4:3)	83.5°×66.7°		
	1 (1:1)	71.2°×71.2°		
	(4:3)	78.4°×62.2°		
	2/3	57.8°×44.9°		

**M111FM16** FFMP 3.1μm 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	M55 P=0.75mm	
Aperture Range	F/1.8 - 22	Overall Length	99mm	
Focus Range	0.3m - ∞	Weight	385g	
Field of View Angle (Horizontal * Vertical)	1.1 (1:1)	42.6°×42.6°	Remarks	RoHS
	(4:3)	47.7°×36.5°		
	1 (1:1)	39.4°×39.4°		
	(4:3)	44.2°×33.7°		
	2/3	31.0°×23.4°		

**M111FM25** FFMP 3.1μm 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	M55 P=0.75mm	
Aperture Range	F/1.8 - 22	Overall Length	102mm	
Focus Range	0.3m - ∞	Weight	415g	
Field of View Angle (Horizontal * Vertical)	1.1 (1:1)	27.6°×27.6°	Remarks	RoHS
	(4:3)	31.1°×23.6°		
	1 (1:1)	25.5°×25.5°		
	(4:3)	28.7°×21.7°		
	2/3	20.0°×15.0°		

**M111FM50** FFMP 3.1μm 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	M49 P=0.75mm	
Aperture Range	F/1.8 - 22	Overall Length	99mm	
Focus Range	0.4m - ∞	Weight	415g	
Field of View Angle (Horizontal * Vertical)	1.1 (1:1)	14.1°×14.1°	Remarks	RoHS
	(4:3)	15.9°×11.9°		
	1 (1:1)	12.9°×12.9°		
	(4:3)	14.6°×11.0°		
	2/3	10.1°×7.6°		

**M112FM06** FFMP 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
	(16:9)	93.1°×59.0°		
	2/3 (4:3)	75.5°×59.2°		
	(16:9)	80.8°×49.3°		

**M112FM08** FFMP 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
	(16:9)	75.3°×45.6°		
	2/3 (4:3)	59.5°×45.8°		
	(16:9)	64.0°×37.8°		

**M112FM12** FFMP 5.86μm Imager Size 1.1/1 1/1.2 2/3


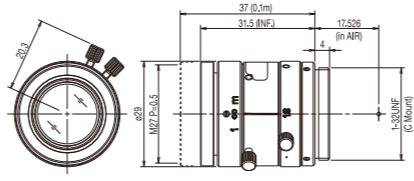
Imager Size	1/1.2	Operation	Focus	Manual with Lock
Mount Type	C		Iris	Manual with Lock
Focal Length	12mm	Filter Size	M27 P=0.5mm	
Aperture Range	F/2.0 - 16	Overall Length	43mm	
Focus Range	0.1m - ∞	Weight	64g	
Field of View Angle (Horizontal * Vertical)	1/1.2 (4:3)	49.2°×37.6°	Remarks	RoHS
	(16:9)	53.2°×30.6°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

**M112FM16** FFMP 5.86μm Imager Size 1.1/1 1/1.2 2/3


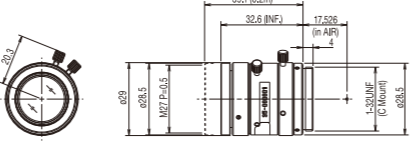
Imager Size	1/1.2	Operation	Focus	Manual with Lock
Mount Type	C		Iris	Manual with Lock
Focal Length	16mm	Filter Size	M27 P=0.5mm	
Aperture Range	F/2.0 - 16	Overall Length	36mm	
Focus Range	0.1m - ∞	Weight	51g	
Field of View Angle (Horizontal * Vertical)	1/1.2 (4:3)	37.4°×28.4°	Remarks	RoHS
	(16:9)	40.5°×22.3°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

# Mega-Pixel Machine Vision Lenses


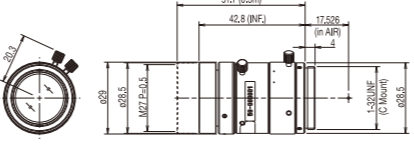
**M112FM25** FFMP 5.86μm Imager Size 1/1.1 1/1.2 2/3

	Imager Size	1/1.2	Operation	Focus	Manual with Lock
	Mount Type	C	Operation	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°x 18.2°	Remarks	RoHS	
	(16:9)	26.2°x 15.0°			
	2/3 (4:3)	19.9°x 15.0°			
	(16:9)	21.7°x 12.3°			


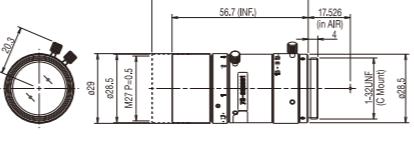
**M112FM35** FFMP 5.86μm Imager Size 1/1.1 1/1.2 2/3

	Imager Size	1/1.2	Operation	Focus	Manual with Lock
	Mount Type	C	Operation	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°x13.1°	Remarks	RoHS	
	(16:9)	18.8°x10.7°			
	2/3 (4:3)	14.3°x10.7°			
	(16:9)	15.5°x8.8°			


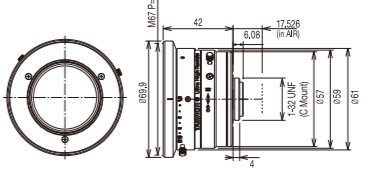
**M112FM50** FFMP 5.86μm Imager Size 1/1.1 1/1.2 2/3

	Imager Size	1/1.2	Operation	Focus	Manual with Lock
	Mount Type	C	Operation	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°x9.2°	Remarks	RoHS	
	(16:9)	13.2°x7.5°			
	2/3 (4:3)	10.0°x7.5°			
	(16:9)	10.9°x6.16°			


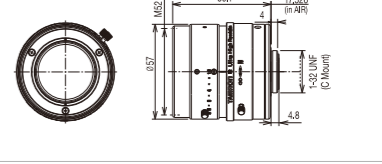
**M112FM75** FFMP 5.86μm Imager Size 1/1.1 1/1.2 2/3

	Imager Size	1/1.2	Operation	Focus	Manual with Lock
	Mount Type	C	Operation	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°x6.1°	Remarks	RoHS	
	(16:9)	8.9°x5.0°			
	2/3 (4:3)	6.7°x5.0°			
	(16:9)	7.3°x4.1°			


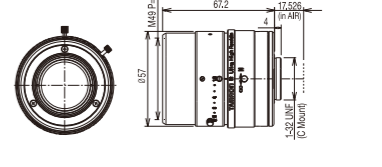
**M23FM06** FFMP 2.5μm Imager Size 2/3 1/1.8 1/2 1/4

	Imager Size	2/3	Operation	Focus	Manual with Lock
	Mount Type	C	Operation	Iris	Manual with Lock
	Focal Length	6mm	Filter Size	M67 P=0.75mm	
	Aperture Range	F/1.8 - 22	Overall Length	48mm	
	Focus Range	0.1m - ∞	Weight	240g	
Field of View Angle (Horizontal * Vertical)	2/3	74.3°x58.4°	Remarks	RoHS	
	1/2	56.8°x43.6°			
	1/3	43.6°x33.1°			


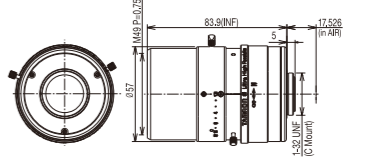
**M23FM08** FFMP 2.5μm Imager Size 2/3 1/1.8 1/2 1/4

	Imager Size	2/3	Operation	Focus	Manual with Lock
	Mount Type	C	Operation	Iris	Manual with Lock
	Focal Length	8mm	Filter Size	M52 P=0.75mm	
	Aperture Range	F/1.8 - 22	Overall Length	64mm	
	Focus Range	0.1m - ∞	Weight	280g	
Field of View Angle (Horizontal * Vertical)	2/3	58.5°x45.1°	Remarks	RoHS	
	1/2	43.8°x33.3°			
	1/3	33.3°x25.2°			


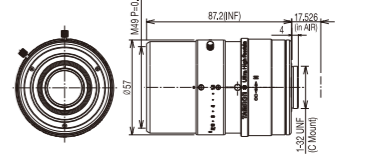
**M23FM12** FFMP 2.5μm Imager Size 2/3 1/1.8 1/2 1/4

	Imager Size	2/3	Operation	Focus	Manual with Lock
	Mount Type	C	Operation	Iris	Manual with Lock
	Focal Length	12mm	Filter Size	M49 P=0.75mm	
	Aperture Range	F/1.8 - 22	Overall Length	71mm	
	Focus Range	0.1m - ∞	Weight	333g	
Field of View Angle (Horizontal * Vertical)	2/3	40.5°x30.9°	Remarks	RoHS	
	1/2	30.0°x22.7°			
	1/3	22.7°x17.1°			

**M23FM16** FFMP 2.5μm Imager Size 2/3 1/1.8 1/2 1/4

	Imager Size	2/3	Operation	Focus	Manual with Lock
	Mount Type	C	Operation	Iris	Manual with Lock
	Focal Length	16mm	Filter Size	M49 P=0.75mm	
	Aperture Range	F/1.8 - 22	Overall Length	89mm	
	Focus Range	0.1m - ∞	Weight	358g	
Field of View Angle (Horizontal * Vertical)	2/3	30.1°x22.8°	Remarks	RoHS	
	1/2	22.1°x16.6°			
	1/3	16.6°x12.5°			

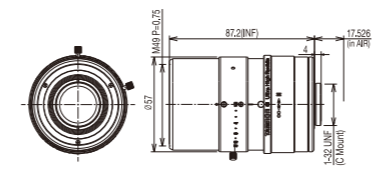
**M23FM25** FFMP 2.5μm Imager Size 2/3 1/1.8 1/2 1/4

	Imager Size	2/3	Operation	Focus	Manual with Lock
	Mount Type	C	Operation	Iris	Manual with Lock
	Focal Length	25mm	Filter Size	M49 P=0.75mm	
	Aperture Range	F/1.8 - 22	Overall Length	91mm	
	Focus Range	0.1m - ∞	Weight	380g	
Field of View Angle (Horizontal * Vertical)	2/3	20.0°x15.1°	Remarks	RoHS	
	1/2	14.6°x11.0°			
	1/3	11.0°x8.2°			

# Mega-Pixel Machine Vision Lenses

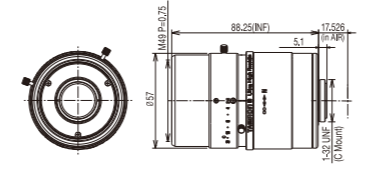
**M23FM35** FFMP 2.5μm Imager Size 2/3 1/1.8 1/2 1/4

Imager Size	2/3	Operation	Focus	Manual with Lock
Mount Type	C		Iris	Manual with Lock
Focal Length	35mm	Filter Size	M49 P=0.75mm	
Aperture Range	F/1.8 - 22	Overall Length	91mm	
Focus Range	0.15m - ∞	Weight	388g	
Field of View Angle (Horizontal * Vertical)	2/3 14.4°×10.8° 1/2 10.5°×7.8° 1/3 7.8°×5.9°	Remarks	RoHS	



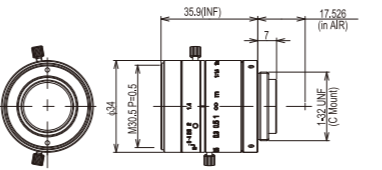
**M23FM50** FFMP 2.5μm Imager Size 2/3 1/1.8 1/2 1/4

Imager Size	2/3	Operation	Focus	Manual with Lock
Mount Type	C		Iris	Manual with Lock
Focal Length	50mm	Filter Size	M49 P=0.75mm	
Aperture Range	F/2.8 - 32	Overall Length	93mm	
Focus Range	0.15m - ∞	Weight	374g	
Field of View Angle (Horizontal * Vertical)	2/3 10.1°×7.6° 1/2 7.3°×5.5° 1/3 5.5°×4.1°	Remarks	RoHS	



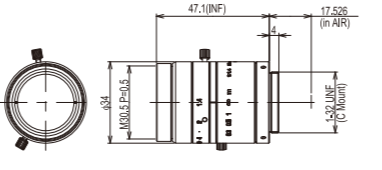
**23FM16SP** FFMP 4.0μm Imager Size 2/3 1/1.8 1/2 1/4

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° 1/2 22.7°×17.1° 1/3 17.1°×12.9°	Remarks	RoHS	



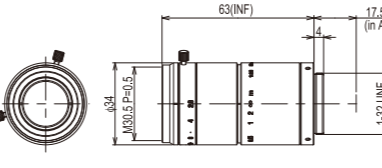
**23FM25SP** FFMP 4.0μm Imager Size 2/3 1/1.8 1/2 1/4

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° 1/2 14.6°×11.0° 1/3 11.0°×8.2°	Remarks	RoHS	



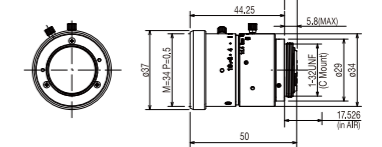
**23FM50SP** FFMP 4.0μm Imager Size 2/3 1/1.8 1/2 1/4

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° 1/2 7.3°×5.5° 1/3 5.5°×4.1°	Remarks	RoHS	



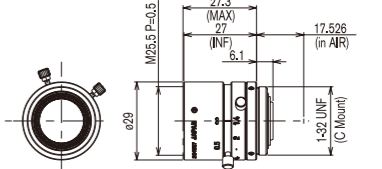
**M118FM06** FFMP 4.0μm Imager Size 2/3 1/1.8 1/2 1/4

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° 1/2 58.9°×44.9° 1/3 44.9°×34.0°	Remarks	RoHS	



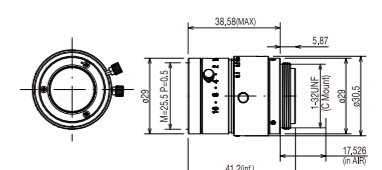
**M118FM08** FFMP 4.0μm Imager Size 2/3 1/1.8 1/2 1/4

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° 1/2 45.0°×34.0° 1/3 34.0°×25.6°	Remarks	RoHS	



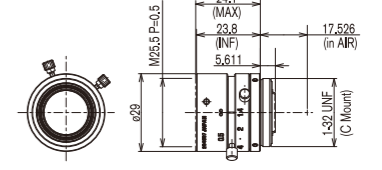
**M118FM12** FFMP 4.0μm Imager Size 2/3 1/1.8 1/2 1/4

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° 1/2 30.2°×22.7° 1/3 22.7°×17.1°	Remarks	RoHS	



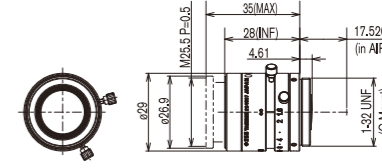
**M118FM16** FFMP 4.0μm Imager Size 2/3 1/1.8 1/2 1/4

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° 1/2 22.8°×17.1° 1/3 17.1°×12.9°	Remarks	RoHS	



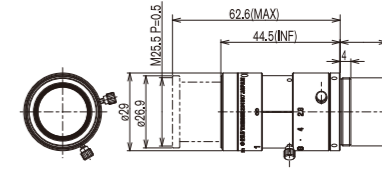
**M118FM25** FFMP 4.0μm Imager Size 2/3 1/1.8 1/2 1/4

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° 1/2 14.6°×11.0° 1/3 11.0°×8.2°	Remarks	RoHS	



**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° 1/2 7.3°×5.5° 1/3 5.5°×4.1°	Remarks	RoHS	



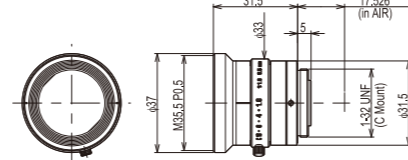
# Machine Vision Lenses

## 22HA

SD Imager Size [2/3](#) [1/1.8](#) [1/2](#) [1/4](#)



Imager Size	2/3	Operation	Focus	-
Mount Type	C	Operation	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°		
	1/2	53.9°×41.0°		
	1/3	41.0°×31.0°		
Remarks	RoHs			

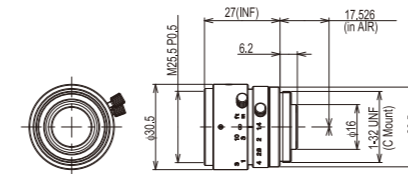


## 219HB

SD Imager Size [2/3](#) [1/1.8](#) [1/2](#) [1/4](#)



Imager Size	2/3	Operation	Focus	Manual with Lock
Mount Type	C	Operation	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°		
	1/2	43.6°×33.1°		
	1/3	33.1°×25.0°		
Remarks	RoHs			

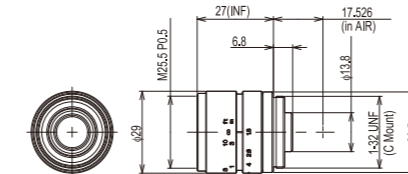


## 25HA

SD Imager Size [2/3](#) [1/1.8](#) [1/2](#) [1/4](#)



Imager Size	2/3	Operation	Focus	Manual
Mount Type	C	Operation	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	40g	
Field of View Angle (Horizontal * Vertical)	2/3	40.9°×30.9°		
	1/2	30.0°×22.4°		
	1/3	22.4°×16.6°		
Remarks	RoHs			

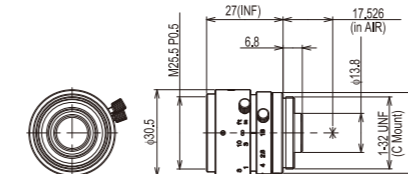


## 25HB

SD Imager Size [2/3](#) [1/1.8](#) [1/2](#) [1/4](#)



Imager Size	2/3	Operation	Focus	Manual with Lock
Mount Type	C	Operation	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°		
	1/2	30.0°×22.4°		
	1/3	22.4°×16.6°		
Remarks	RoHs			

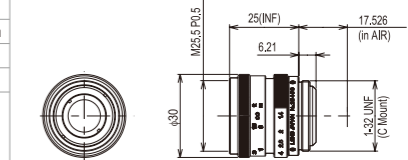


## 17HD

SD Imager Size [2/3](#) [1/1.8](#) [1/2](#) [1/4](#)



Imager Size	2/3	Operation	Focus	Manual
Mount Type	C	Operation	Iris	Manual
Focal Length	16mm	Filter Size	M25.5 P=0.5mm	
Aperture Range	F/1.4 - 16	Overall Length	31mm	
Focus Range	0.29m - ∞	Weight	50g	
Field of View Angle (Horizontal * Vertical)	2/3	30.9°×23.2°		
	1/2	22.5°×16.9°		
	1/3	16.9°×12.7°		
Remarks	RoHs			

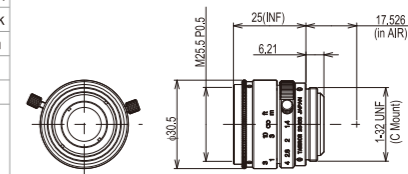


## 17HF

SD Imager Size [2/3](#) [1/1.8](#) [1/2](#) [1/4](#)



Imager Size	2/3	Operation	Focus	Manual with Lock
Mount Type	C	Operation	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°		
	1/2	22.5°×16.9°		
	1/3	16.9°×12.7°		
Remarks	RoHs			

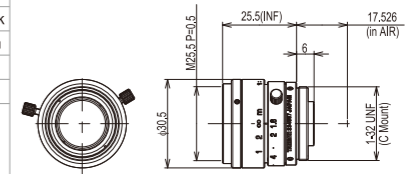


## 20HC

SD Imager Size [2/3](#) [1/1.8](#) [1/2](#) [1/4](#)



Imager Size	2/3	Operation	Focus	Manual with Lock
Mount Type	C	Operation	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°		
	1/2	14.6°×11.0°		
	1/3	11.0°×8.2°		
Remarks	RoHs			

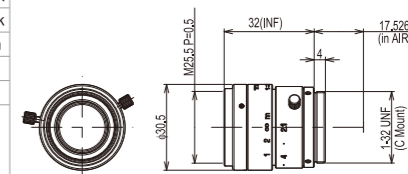


## 35HB

SD Imager Size [2/3](#) [1/1.8](#) [1/2](#) [1/4](#)



Imager Size	2/3	Operation	Focus	Manual with Lock
Mount Type	C	Operation	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°		
	1/2	10.4°×7.8°		
	1/3	7.8°×5.9°		
Remarks	RoHs			

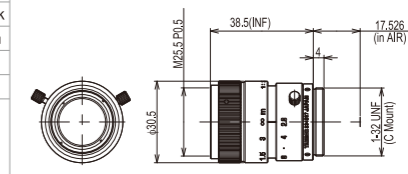


## 21HC

SD Imager Size [2/3](#) [1/1.8](#) [1/2](#) [1/4](#)



Imager Size	2/3	Operation	Focus	Manual with Lock
Mount Type	C	Operation	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°		
	1/2	7.3°×5.5°		
	1/3	5.5°×4.1°		
Remarks	RoHs			

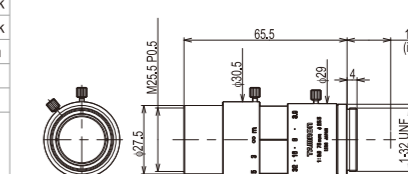


## 1A1HB

SD Imager Size [2/3](#) [1/1.8](#) [1/2](#) [1/4](#)



Imager Size	2/3	Operation	Focus	Manual with Lock
Mount Type	C	Operation	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°		
	1/2	5.0°×3.5°		
	1/3	3.5°×2.5°		
Remarks	RoHs			



# Accessories

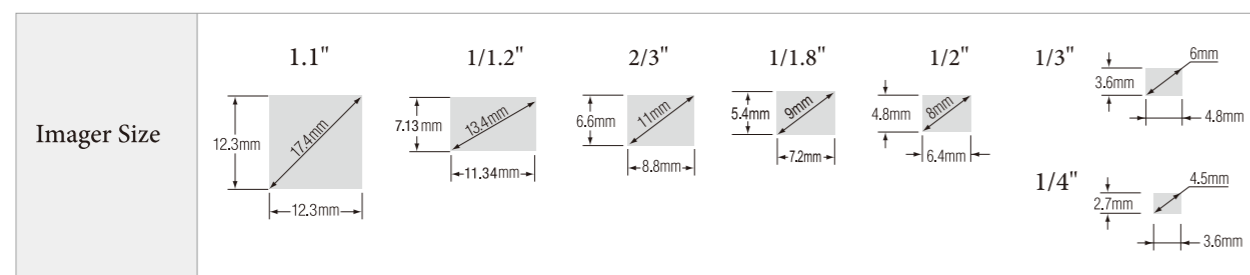
## Special Accessories for Machine Vision Lenses

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
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## Remarks



- 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
1/1.2" Lens	1/4" Camera	0.26× against the Specified Angle of View
	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	1/3" Camera	0.34× against the Specified Angle of View
	1/4" Camera	0.26× against the Specified Angle of View

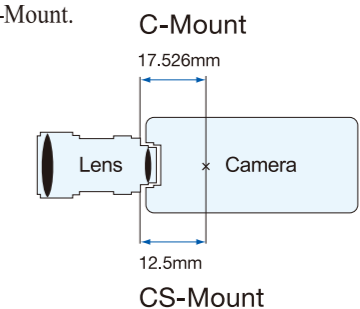
2/3" Lens	1/2" Camera	0.73× against the Specified Angle of View
	1/3" Camera	0.55× against the Specified Angle of View
1/1.8" Lens	1/4" Camera	0.41× against the Specified Angle of View
	1/2" Camera	0.89× against the Specified Angle of View
1/2" Lens	1/3" Camera	0.67× against the Specified Angle of View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

# Terminology Explanation

## Mount Type

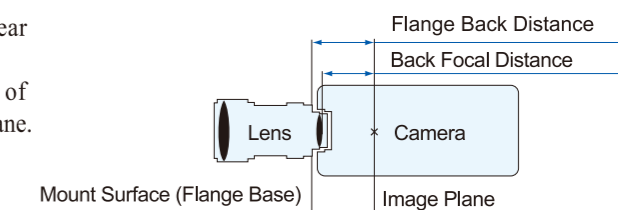
Correspond to the standard mount type of the camera which may be either C-Mount or CS-Mount. The characteristics are as follows.

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



## Flange Back Distance & Back Focal Distance

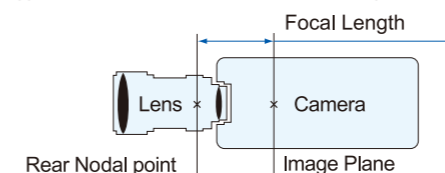
- Flange Back Distance: Distance between the mechanical rear end of the mount surface and the image plane.
- Back Focal Distance: Distance between the physical end of the lens element (side closest to the camera) and the image plane.



## Focal Length

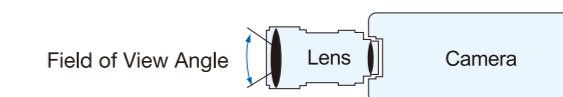
Distance between the rear nodal point and the focal point (Image Plane) on the optical axis.

- \*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 Minimum 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.
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- Get technical information and news about discontinued products.