

Fine Technology

ADVANCED CCTV LENSES

Vari-Focal Lenses
Motorized Zoom Lenses
Fixed-Focal Lenses
Mega-Pixel High Resolution Lenses
Super High Resolution Lens
High Resolution Lenses
Accessories



Vision With Precision



Day to Night Solution
TAMRON IR LENSES

A Half Century of Innovation and Achievement, Tamron the Pioneer of the Vari-Focal Lens

Empowered by fifty years of optical expertise, Tamron proceeds to open new horizons that change the concept of industrial optics, Concentrating on meeting the demands of professionals in the field, Tamron pioneered the Vari-Focal lens design and continues to research new technologies in order to bring to market lenses that are compact and lightweight, high performance and high quality.



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Products and Features

Vari-Focal Lenses

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



Abundant Lens Line-up

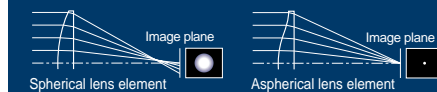
Practically any application can be handled by Tamron's wide selection of 1/3" format lenses that range from an ultra-wideangle 2.8mm, which provides a 97° angle of view, to a 50mm ultra telephoto lens with a 4° angle of view.

Outstanding Image Quality through the Employment of Aspherical Elements

The main Tamron Vari-Focal lenses for the 1/3" format use aspherical elements in order to achieve high resolution and high contrast performance over the entire focal length range. The designers paid particular attention to peripheral image quality in light of the increasing use of these lenses with digital recorders that require image degradation in the periphery be at an absolute minimum. The use of aspherical elements also contributes to the compact design of the Vari-Focal lenses for which Tamron is well known.

■ Compensation effect with an aspherical lens element (Schematic Illustration)

● Compensation for Spherical Aberration



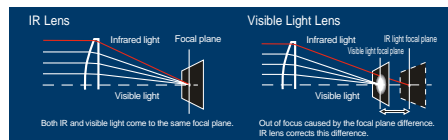
Wide Dynamic Range

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 with Day/Night Cameras

The 2.8-11mm Vari-Focal lens for the 1/3" format is designed to minimize focus shift in the near infrared range by expanding chromatic aberration compensation to include both daylight and the near infrared ranges. The lens therefore exhibits its power in 24-hour around-the-clock surveillance when combined with a day/night camera.



Super High Resolution Fixed-Focal Lenses for Industrial Applications

for Machine Vision / Factory Automation applications

Tamron's high resolution line-up of lenses are 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.

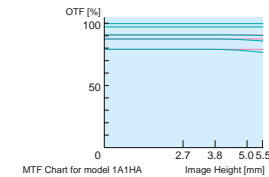


Minimized Distortion

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 fixed-focal lenses provide stabilized 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 Factory Automation apparatus where lenses are built in, Tamron's fixed-focal lenses all feature solid and robust mechanisms. This makes it possible to maintain their finest initial performance even after long periods of use.

Locking Mechanisms

Each of the lenses are 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 machines, all of the lenses in each series provide compact chassis and the external dimensions and filter sizes are unified.

Motorized Zoom Lenses

Tamron's motorized zoom lenses ranging from 10X to 20X are designed with durability and reliability in mind.



Fixed-Focal Lenses for Surveillance

A complete series of 37 models covering CCD formats from 1/3" to 2/3" are available.



Compatible with Day/Night Cameras

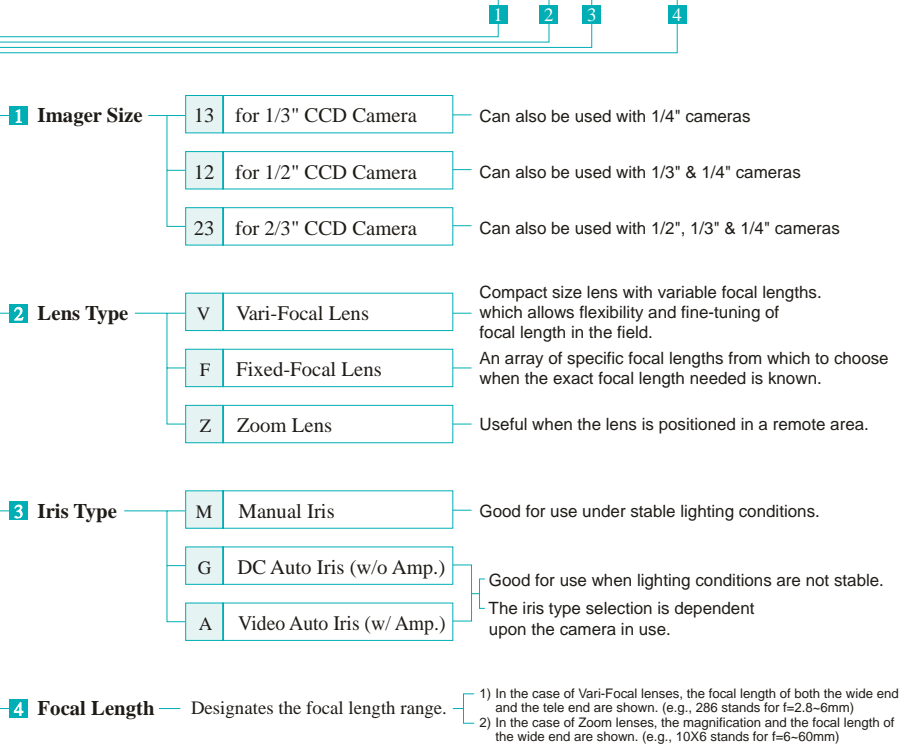
Tamron's 1/3" format 2.8mm, 4mm, 6mm and 8mm lenses are precisely compatible with day/night cameras since their chromatic aberration compensation is expanded to the near infrared range.

Model Explanation

Tamron CCTV lens model numbers are very simple.
Please see the following explanation of model number nomenclature.

Model Explanation

Model numbers **13 V M 2 8 1 2 A S I R**



Mount Type — Please refer to the specification sheet.

General Specifications

Vari-Focal Lenses

Con-F Constant F-Number **Asl** Aspherical Lens **IR** Infrared

Iris Type	Imager Size	Model No.	Focal Length	Aperture Range	Remarks	Page
Manual Iris	2/3	23VM816T	8-16mm	1.6-Close	Con-F	9
	1/2	12VM612T	6-12mm	1.4-Close	Con-F	
	1/3	13VM286T	2.8-6mm	1.2-Close	Con-F Asl	
		13VM550T	5-50mm	1.4-Close	Asl	
		13VM2812AS	2.8-12mm	1.4-Close	Asl	
	13VQ358T1.4	3.5-8mm	1.4	Con-F		
13VM308AS	3.0-8mm	1.0-Close	Asl			
13VM2811ASIR	2.8-11mm	1.4-Close	Asl IR			
Manual Iris/IR Corrected	1/3	13VM308ASIR	3.0-8mm	1.0-Close	Asl IR	11
Auto Iris (DC)	1/2	12VG612T	6-12mm	1.4-Close	Con-F	12
	1/3	13VG286T	2.8-6mm	1.2-64	Con-F Asl	
		13VG550T	5-50mm	1.4-185	Asl	
		13VG2812AS	2.8-12mm	1.4-360	Asl	
	13VG308AS	3.0-8mm	1.0-360	Asl	13	
Auto Iris (DC/IR Corrected)	1/3	13VG308ASIR	3.0-8mm	1.0-360	Asl IR	14
		13VG2811ASIR	2.8-11mm	1.4-360	Asl IR	
Auto Iris (Video)	2/3	23VA816T	8-16mm	1.6-Close	Con-F	15
	1/2	12VA612T	6-12mm	1.4-Close	Con-F	
	1/3	13VA286T	2.8-6mm	1.2-64	Con-F Asl	16
		13VA550T	5-50mm	1.4-185	Asl	
		13VA2812AS	2.8-12mm	1.4-360	Asl	
13VA308AS	3.0-8mm	1.0-360	Asl	17		
Manual Iris	1/3	19YA	6-12mm	3-29 (Wide)	for Micro Camera	18

Motorized Zoom Lenses

Iris Type	Imager Size	Model No.	Focal Length	Aperture Range	Remarks	Page
Motorized Iris	1/2	12ZM10X8T	8-80mm	1.8-360		19
		12ZM15X8	8-120mm	1.8-360		
	1/3	13ZM10X6T	6-60mm	1.4-360		20
		13ZM15X6	6-90mm	1.6-360		
		13ZM20X56	5.6-112mm	1.6-360		
Auto Iris (DC)	1/2	12ZG10X8CT	8-80mm	1.8-360		22
	1/3	13ZG10X6CT	6-60mm	1.4-360		
Auto Iris (Video)	1/2	12ZA10X8CT	8-80mm	1.8-360		23
		12ZA15X8	8-120mm	1.8-360		
	1/3	13ZA10X6CT	6-60mm	1.4-360		24
		13ZA15X6	6-90mm	1.6-360		
		13ZA20X56	5.6-112mm	1.6-360		
	1/2	12ZA10X8PT	8-80mm	1.8-360		26
		12ZA15X8P	8-120mm	1.8-360		
	1/3	13ZA10X6PT	6-60mm	1.4-360		27
		13ZA15X6P	6-90mm	1.6-360		
		13ZA20X56P	5.6-112mm	1.6-360		

General Specifications

General Specifications

Fixed Focal Lenses

Iris Type	Imager Size	Model No.	Focal Length	Aperture Range	Remarks	IR Infrared		
							Page	
Manual Iris	2/3	23FO45T	4.5mm	2.0			29	
		23FM08	8mm	1.4 - Close				
		23FM16	16mm	1.4 - Close				
	1/2	12FM35	3.5mm	1.4 - Close			30	
		12FM45	4.5mm	1.4 - Close				
		12FM06	6mm	1.4 - Close				
		12FM12	12mm	1.4 - Close				
		12FM04CST	4mm	1.4 - Close				
		12FM06CST	6mm	1.4 - Close				
	Manual Iris/IR Corrected	1/3	12FM12CST	12mm	1.4 - Close			31
			13FM28IR	2.8mm	1.2 - Close	IR	32	
			13FM04IR	4mm	1.2 - Close	IR		
13FM06IR			6mm	1.2 - Close	IR			
Auto Iris (DC)	1/2	13FM08IR	8mm	1.2 - Close	IR	33		
		12FG35	3.5mm	1.4 - 360				
		12FG45	4.5mm	1.4 - 360				
		12FG06	6mm	1.4 - 360				
		12FG12	12mm	1.4 - 360				
		12FG04CST	4mm	1.4 - 150				
		12FG06CST	6mm	1.4 - 150				
		12FG12CST	12mm	1.4 - 200				
Auto Iris (DC/IR Corrected)	1/3	12FG35	3.5mm	1.4 - 360		34		
		13FG28IR	2.8mm	1.2 - 360	IR			
		13FG04IR	4mm	1.2 - 360	IR			
		13FG06IR	6mm	1.2 - 360	IR			
Auto Iris (Video)	2/3	13FG08IR	8mm	1.2 - 360	IR	35		
		23FA08	8mm	1.4 - 360				
	1/2	23FA16	16mm	1.4 - 360		36		
		12FA35	3.5mm	1.4 - 360				
		12FA45	4.5mm	1.4 - 360				
		12FA06	6mm	1.4 - 360				
		12FA12	12mm	1.4 - 360				
		12FA04CST	4mm	1.4 - 150				
	1/3	12FA06CST	6mm	1.4 - 150		37		
		12FA12CST	12mm	1.4 - 200				
		13FA28T	2.8mm	1.4 - 125				
		13FA04T	4mm	1.2 - 125				
		13FA08T	8mm	1.2 - 150		38		

Mega-Pixel High Resolution Lenses

Iris Type	Imager Size	Model No.	Focal Length	Aperture Range	Remarks	Page
Manual Iris	2/3	23FM16SP	16mm	1.4 - 22	w/Lock screw	43
		23FM25SP	25mm	1.4 - 22	w/Lock screw	
		23FM50SP	50mm	2.8 - 32	w/Lock screw	

Super High Resolution Lens

Iris Type	Imager Size	Model No.	Focal Length	Aperture Range	Remarks	Page
Manual Iris	2/3	26HA	25mm	1.4 - Close		43

High Resolution Lenses

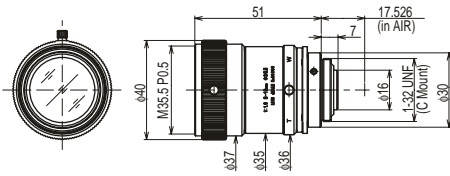
Iris Type	Imager Size	Model No.	Focal Length	Aperture Range	Remarks	Page
Manual Iris	2/3	22HA	6.5mm	1.8 - Close	w/Lock screw	44
		219HA	8mm	1.4 - 16		
		219HB	8mm	1.4 - 16	w/Lock screw	45
		25HA	12mm	1.8 - 16		
		25HB	12mm	1.8 - 16	w/Lock screw	
		17HD	16mm	1.4 - 16		
		17HF	16mm	1.4 - 16	w/Lock screw	46
		20HA	25mm	1.6 - 16		
		20HC	25mm	1.6 - 16	w/Lock screw	
		35HB	35mm	2.1 - 22	w/Lock screw	
		47	21HA	50mm	2.8 - 22	
			21HC	50mm	2.8 - 22	w/Lock screw
			1A1HA	75mm	3.9 - 32	
			1A1HB	75mm	3.9 - 32	w/Lock screw

Accessories

	Model No.	Page
Optional Accessories for High Resolution Lenses	Extension Ring	EX-7
	Filter (φ25.5mm) Filter (φ35.5mm)	UV
		PL
		R2
		PO1
Standard Accessories	80B	48
	C-CS Adapter	
	Filter (φ30.5mm) Filter (φ37.5mm)	

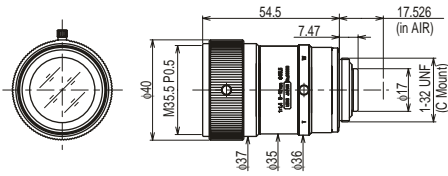
Vari-Focal Lenses (Manual Iris)

23VM816T



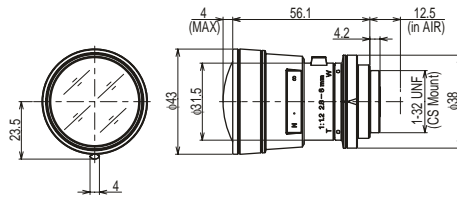
Imager Size	2/3	
Mount Type	C	
Focal Length	8 ~ 16mm	
Aperture Range	1.6 ~ Close	
Angle of View (Horizontal X Vertical)	2/3 Wide Tele	59.8° X 45.3° 30.8° X 23.6°
	1/2 Wide Tele	44.0° X 33.2° 22.9° X 17.3°
	1/3 Wide Tele	33.2° X 24.9° 17.3° X 13.1°
	1/4 Wide Tele	24.9° X 18.7° 13.0° X 9.8°
Focusing Range	0.93m ~ ∞	
Operation	Focus	Manual w/Lock
	Zoom	Manual w/Lock
	Iris	Manual
Filter Size	M35.5 P=0.5mm	
Back Focus (in air)	10.89mm	
Weight	96g	
Operating Temperature	-8 ~ +48°C	

12VM612T



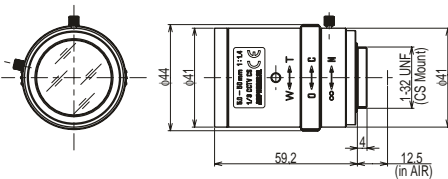
Imager Size	1/2	
Mount Type	C	
Focal Length	6 ~ 12mm	
Aperture Range	1.4 ~ Close	
Angle of View (Horizontal X Vertical)	1/2 Wide Tele	58.7° X 44.4° 30.4° X 23.1°
	1/3 Wide Tele	44.4° X 33.4° 23.1° X 17.5°
	1/4 Wide Tele	33.4° X 25.1° 17.4° X 13.1°
	Wide Tele	17.4° X 13.1°
Focusing Range	0.23m ~ ∞	
Operation	Focus	Manual w/Lock
	Zoom	Manual w/Lock
	Iris	Manual
Filter Size	M35.5 P=0.5mm	
Back Focus (in air)	10.4mm	
Weight	105g	
Operating Temperature	-5 ~ +50°C	

13VM286T



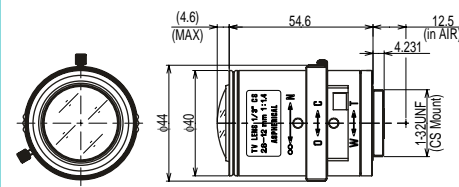
Imager Size	1/3	
Mount Type	C S	
Focal Length	2.8 ~ 6mm	
Aperture Range	1.2 ~ Close	
Angle of View (Horizontal X Vertical)	1/3 Wide Tele	88.7° X 69.2° 44.2° X 34.0°
	1/4 Wide Tele	69.1° X 52.8° 34.0° X 25.9°
Focusing Range	0.3m ~ ∞	
Operation	Focus	Manual
	Zoom	Manual
	Iris	Manual
Filter Size	-----	
Back Focus (in air)	8.54mm	
Weight	80g	
Operating Temperature	-10 ~ +70°C	

13VM550T



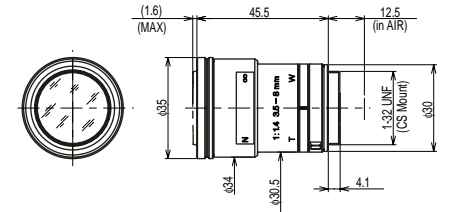
Imager Size	1/3	
Mount Type	C S	
Focal Length	5 ~ 50mm	
Aperture Range	1.4 ~ Close	
Angle of View (Horizontal X Vertical)	1/3 Wide Tele	53.6° X 40.2° 5.5° X 4.2°
	1/4 Wide Tele	40.2° X 30.1° 4.1° X 3.1°
Focusing Range	0.3m ~ ∞	
Operation	Focus	Manual w/Lock
	Zoom	Manual w/Lock
	Iris	Manual
Filter Size	-----	
Back Focus (in air)	Wide	10.05mm
Weight	84g	
Operating Temperature	-10 ~ +60°C	

13VM2812AS



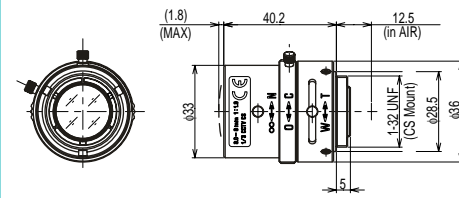
Imager Size	1/3	
Mount Type	C S	
Focal Length	2.8 ~ 12mm	
Aperture Range	1.4 ~ Close	
Angle of View (Horizontal X Vertical)	1/3 Wide Tele	97.4° X 72.5° 24.1° X 18.1°
	1/4 Wide Tele	72.5° X 54.1° 18.1° X 13.6°
Focusing Range	0.3m ~ ∞	
Operation	Focus	Manual w/Lock
	Zoom	Manual w/Lock
	Iris	Manual w/Lock
Filter Size	-----	
Back Focus (in air)	wide8.61 ~ Tele19.90mm	
Weight	72g	
Operating Temperature	-10 ~ +50°C	

13VO358T1.4



Imager Size	1/3	
Mount Type	C S	
Focal Length	3.5 ~ 8mm	
Aperture Range	1.4	
Angle of View (Horizontal X Vertical)	1/3 Wide Tele	73.4° X 55.7° 34.3° X 26.3°
	1/4 Wide Tele	55.7° X 41.9° 26.2° X 19.9°
Focusing Range	0.3m ~ ∞	
Operation	Focus	Manual
	Zoom	Manual
	Iris	Fixed
Filter Size	-----	
Back Focus (in air)	8.79mm	
Weight	48g	
Operating Temperature	-5 ~ +50°C	

13VM308AS

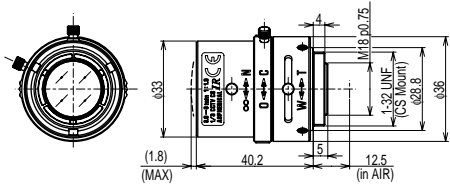


Imager Size	1/3	
Mount Type	C S	
Focal Length	3.0 ~ 8mm	
Aperture Range	1.0 ~ Close	
Angle of View (Horizontal X Vertical)	1/3 Wide Tele	91.0° X 66.6° 35.9° X 26.9°
	1/4 Wide Tele	66.6° X 49.3° 26.9° X 20.1°
Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual w/Lock
	Zoom	Manual w/Lock
	Iris	Manual w/Lock
Filter Size	-----	
Back Focus (in air)	8.36 ~ 14.12mm	
Weight	39g	
Operating Temperature	-20 ~ +60°C	

Vari-Focal Lenses (Manual Iris/IR Corrected)

13VM308ASIR

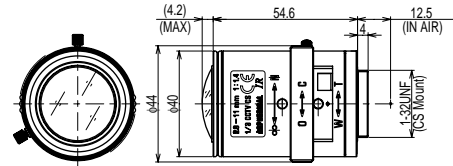
IR INFRARED



Imager Size	1/3		
Mount Type	C S		
Focal Length	3.0 ~ 8mm		
Aperture Range	1.0 ~ Close		
Angle of View (Horizontal X Vertical)	1/3 Wide Tele	90.8° X 66.6°	
	1/4 Wide Tele	27.0° X 20.2°	
Focusing Range	0.2m ~ ∞		
	Focus	Manual w/Lock	
Operation	Zoom	Manual w/Lock	
	Iris	Manual w/Lock	
Filter Size	-----		
Back Focus (in air)	8.36 ~ 14.12mm		
Weight	38g		
Operating Temperature	-20 ~ +60°C		

13VM2811ASIR

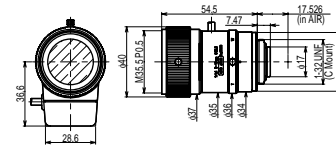
IR INFRARED



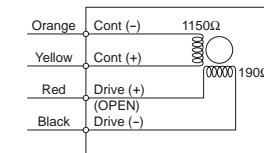
Imager Size	1/3		
Mount Type	C S		
Focal Length	2.8 ~ 11mm		
Aperture Range	1.4 ~ Close		
Angle of View (Horizontal X Vertical)	1/3 Wide Tele	97.4° X 72.4°	
	1/4 Wide Tele	19.7° X 14.7°	
Focusing Range	0.3m ~ ∞		
	Focus	Manual w/Lock	
Operation	Zoom	Manual w/Lock	
	Iris	Manual w/Lock	
Filter Size	-----		
Back Focus (in air)	8.66 ~ 18.69mm		
Weight	72g		
Operating Temperature	-20 ~ +60°C		

Vari-Focal Lenses (DC Auto Iris)

12VG612T

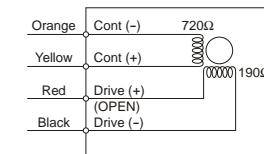


Imager Size	1/2	
Mount Type	C	
Focal Length	6 ~ 12mm	
Aperture Range	1.4 ~ Close	
Angle of View (Horizontal X Vertical)	1/2 Wide Tele	58.7° X 44.4°
	1/3 Wide Tele	44.4° X 33.4°
	1/4 Wide Tele	17.4° X 13.1°
Focusing Range	0.23m ~ ∞	
Operation	Focus	Manual w/Lock
	Zoom	Manual w/Lock
	Iris	Auto Iris (DC)
Filter Size	M35.5 P=0.5mm	
Back Focus (in air)	10.4mm	
Operating Voltage	Open 4.5V Close 0.5V	
Weight	110g	
Operating Temperature	-5 ~ +50°C	
Wiring Diagram (12VG612T)		

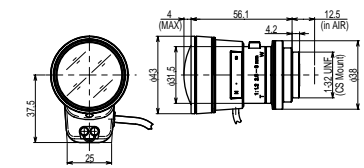


Wiring Diagram

(13VG286T)
(13VG550T)

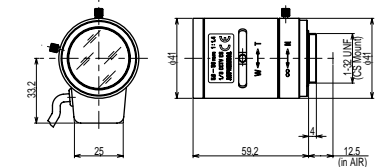


13VG286T



Imager Size	1/3	
Mount Type	C S	
Focal Length	2.8 ~ 6mm	
Aperture Range	1.2 ~ 64	
Angle of View (Horizontal X Vertical)	1/3 Wide Tele	88.7° X 69.2°
	1/4 Wide Tele	34.0° X 25.9°
Focusing Range	0.3m ~ ∞	
Operation	Focus	Manual
	Zoom	Manual
	Iris	Auto Iris (DC)
Filter Size	-----	
Back Focus (in air)	8.54mm	
Operating Voltage	Open 4.0V Close 0.5V	
Weight	100g	
Operating Temperature	-10 ~ +70°C	

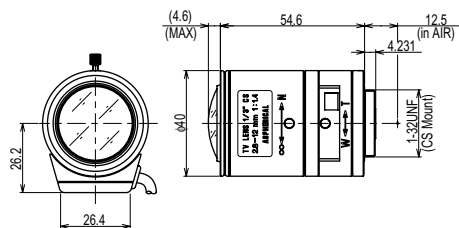
13VG550T



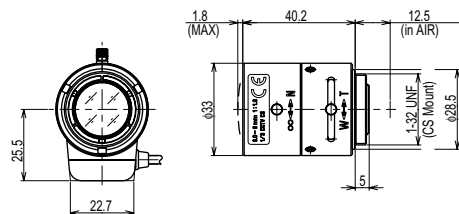
Imager Size	1/3	
Mount Type	C S	
Focal Length	5 ~ 50mm	
Aperture Range	1.4 ~ 185	
Angle of View (Horizontal X Vertical)	1/3 Wide Tele	53.6° X 40.2°
	1/4 Wide Tele	4.1° X 3.1°
Focusing Range	0.3m ~ ∞	
Operation	Focus	Manual w/Lock
	Zoom	Manual w/Lock
	Iris	Auto Iris (DC)
Filter Size	-----	
Back Focus (in air)	Wide	10.05mm
Operating Voltage	Open 4.0V Close 0.5V	
Weight	95g	
Operating Temperature	-10 ~ +60°C	

Vari-Focal Lenses (DC Auto Iris)

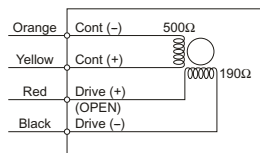
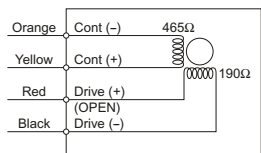
13VG2812AS



13VG308AS

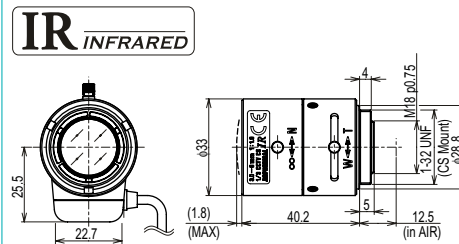


Imager Size	1/3		Imager Size	1/3	
Mount Type	C S		Mount Type	C S	
Focal Length	2.8 ~ 12mm		Focal Length	3.0 ~ 8mm	
Aperture Range	1.4 ~ 360		Aperture Range	1.0 ~ 360	
Angle of View (Horizontal X Vertical)	1/3 Wide Tele	97.4° X 72.5° 24.1° X 18.1°	Angle of View (Horizontal X Vertical)	1/3 Wide Tele	91.0° X 66.6° 35.9° X 26.9°
	1/4 Wide Tele	72.5° X 54.1° 18.1° X 13.6°		1/4 Wide Tele	66.6° X 49.3° 26.9° X 20.1°
Focusing Range	0.3m ~ ∞		Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual w/Lock	Operation	Focus	Manual w/Lock
	Zoom	Manual w/Lock		Zoom	Manual w/Lock
	Iris	Auto Iris (DC)		Iris	Auto Iris (DC)
Filter Size	—		Filter Size	—	
Back Focus (in air)	wide8.61 ~ Tele19.90mm		Back Focus (in air)	8.36 ~ 14.12mm	
Operating Voltage	Open 4.0V Close 0.5V		Operating Voltage	Open 4.0V Close 0.5V	
Weight	79g		Weight	47g	
Operating Temperature	-10 ~ +50°C		Operating Temperature	-20 ~ +60°C	
Wiring Diagram			Wiring Diagram		

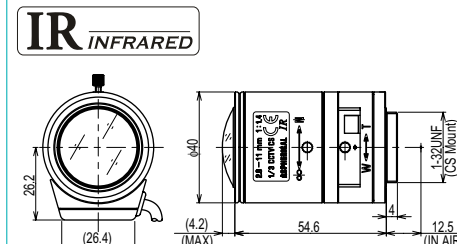


Vari-Focal Lenses (DC Auto Iris/IR Corrected)

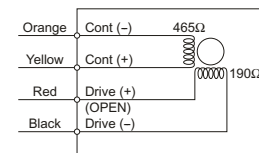
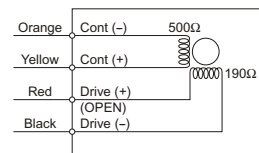
13VG308ASIR



13VG2811ASIR

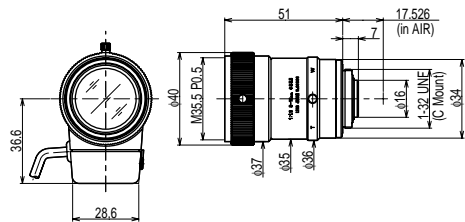


Imager Size	1/3		Imager Size	1/3	
Mount Type	C S		Mount Type	C S	
Focal Length	3.0 ~ 8mm		Focal Length	2.8 ~ 11mm	
Aperture Range	1.0 ~ 360		Aperture Range	1.4 ~ 360	
Angle of View (Horizontal X Vertical)	1/3 Wide Tele	90.8° X 66.6° 36.2° X 27.0°	Angle of View (Horizontal X Vertical)	1/3 Wide Tele	97.4° X 72.4° 26.2° X 19.7°
	1/4 Wide Tele	66.6° X 49.3° 27.0° X 20.2°		1/4 Wide Tele	72.4° X 54.0° 19.7° X 14.7°
Focusing Range	0.2m ~ ∞		Focusing Range	0.3m ~ ∞	
Operation	Focus	Manual w/Lock	Operation	Focus	Manual w/Lock
	Zoom	Manual w/Lock		Zoom	Manual w/Lock
	Iris	Auto Iris (DC)		Iris	Auto Iris (DC)
Filter Size	—		Filter Size	—	
Back Focus (in air)	8.36 ~ 14.12mm		Back Focus (in air)	8.66 ~ 18.69mm	
Operating Voltage	Open 4.0V Close 0.5V		Operating Voltage	Open 4.0V Close 0.5V	
Weight	46g		Weight	79g	
Operating Temperature	-20 ~ +60°		Operating Temperature	-20 ~ +60°C	
Wiring Diagram			Wiring Diagram		

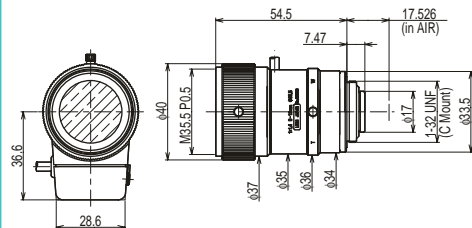


Vari-Focal Lenses (Video Auto Iris)

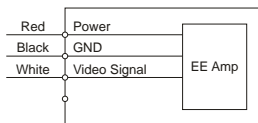
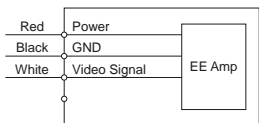
23VA816T



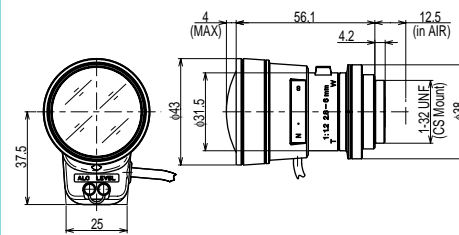
12VA612T



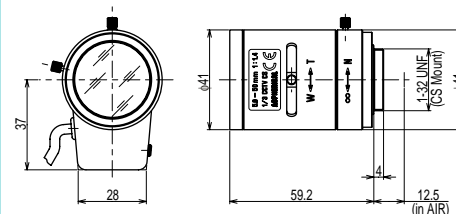
Imager Size	2/3		Imager Size	1/2	
Mount Type	C		Mount Type	C	
Focal Length	8 ~ 16mm		Focal Length	6 ~ 12mm	
Aperture Range	1.6 ~ Close		Aperture Range	1.4 ~ Close	
Angle of View (Horizontal X Vertical)	2/3 Wide Tele	59.8° X 45.3° 30.8° X 23.6°	Angle of View (Horizontal X Vertical)	1/2 Wide Tele	58.7° X 44.4° 30.4° X 23.1°
	1/2 Wide Tele	44.0° X 33.2° 22.9° X 17.3°		1/3 Wide Tele	44.4° X 33.4° 23.1° X 17.5°
	1/3 Wide Tele	33.2° X 24.9° 17.3° X 13.1°		1/4 Wide Tele	33.4° X 25.1° 17.4° X 13.1°
	1/4 Wide Tele	24.9° X 18.7° 13.0° X 9.8°			
Focusing Range	0.93m ~ ∞		Focusing Range	0.23m ~ ∞	
Operation	Focus	Manual w/Lock	Operation	Focus	Manual w/Lock
	Zoom	Manual w/Lock		Zoom	Manual w/Lock
	Iris	Auto Iris (Video)		Iris	Auto Iris (Video)
Filter Size	M35.5 P=0.5mm		Filter Size	M35.5 P=0.5mm	
Back Focus (in air)	10.89mm		Back Focus (in air)	10.4mm	
Input Power (Max. Power Consumption)	DC 8 ~ 13V (50mA)		Input Power (Max. Power Consumption)	DC 8 ~ 13V (50mA)	
Input Signal	VS or V signal		Input Signal	VS or V signal	
A.L.C.	Average-Peak		A.L.C.	Average-Peak	
Weight	130g		Weight	110g	
Operating Temperature	-5 ~ +50°C		Operating Temperature	-5 ~ +50°C	
Wiring Diagram			Wiring Diagram		



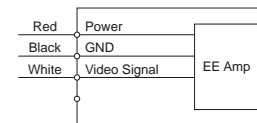
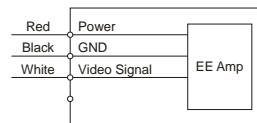
13VA286T



13VA550T

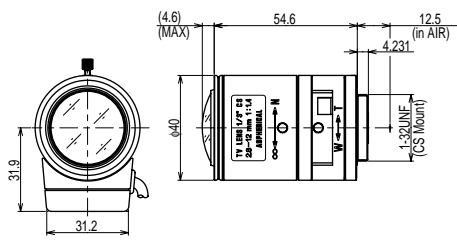


Imager Size	1/3		Imager Size	1/3	
Mount Type	C S		Mount Type	C S	
Focal Length	2.8 ~ 6mm		Focal Length	5 ~ 50mm	
Aperture Range	1.2 ~ 64		Aperture Range	1.4 ~ 185	
Angle of View (Horizontal X Vertical)	1/3 Wide Tele	88.7° X 69.2° 44.2° X 34.0°	Angle of View (Horizontal X Vertical)	1/3 Wide Tele	53.6° X 40.2° 5.5° X 4.2°
	1/4 Wide Tele	69.1° X 52.8° 34.0° X 25.9°		1/4 Wide Tele	40.2° X 30.1° 4.1° X 3.1°
Focusing Range	0.3m ~ ∞		Focusing Range	0.3m ~ ∞ 1.0m ~ ∞	
Operation	Focus	Manual	Operation	Focus	Manual w/Lock
	Zoom	Manual		Zoom	Manual w/Lock
	Iris	Auto Iris (Video)		Iris	Auto Iris (Video)
Filter Size	—		Filter Size	—	
Back Focus (in air)	8.54mm		Back Focus (in air)	Wide	10.05mm
Input Power (Max. Power Consumption)	DC 5 ~ 15V (50mA)		Input Power (Max. Power Consumption)	DC 8.5 ~ 16V (50mA)	
Input Signal	VS or V signal		Input Signal	VS or V signal	
A.L.C.	Average-Peak		A.L.C.	Average-Peak	
Weight	100g		Weight	101g	
Operating Temperature	-10 ~ +70°C		Operating Temperature	-10 ~ +60°C	
Wiring Diagram			Wiring Diagram		

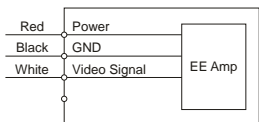


Vari-Focal Lenses (Video Auto Iris)

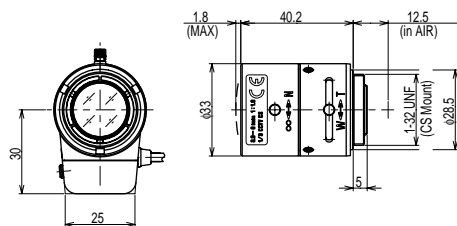
13VA2812AS



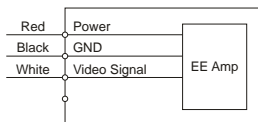
Imager Size	1/3	
Mount Type	C S	
Focal Length	2.8 ~ 12mm	
Aperture Range	1.4 ~ 360	
Angle of View (Horizontal X Vertical)	1/3 Wide Tele	97.4° X 72.5° 24.1° X 18.1°
	1/4 Wide Tele	72.5° X 54.1° 18.1° X 13.6°
Focusing Range	0.3m ~ ∞	
Operation	Focus	Manual w/Lock
	Zoom	Manual w/Lock
	Iris	Auto Iris (Video)
Filter Size	—	
Back Focus (in air)	wide8.61 ~ Tele19.90mm	
Input Power (Max. Power Consumption)	DC 8.5 ~ 16V (50mA)	
Input Signal	VS or V signal	
A.L.C.	Average-Peak	
Weight	82g	
Operating Temperature	-10 ~ +50°C	
Wiring Diagram		



13VA308AS

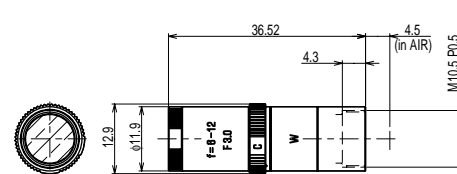


Imager Size	1/3	
Mount Type	C S	
Focal Length	3.0 ~ 8mm	
Aperture Range	1.0 ~ 360	
Angle of View (Horizontal X Vertical)	1/3 Wide Tele	91.0° X 66.6° 35.9° X 26.9°
	1/4 Wide Tele	66.6° X 49.3° 26.9° X 20.1°
Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual w/Lock
	Zoom	Manual w/Lock
	Iris	Auto Iris (Video)
Filter Size	—	
Back Focus (in air)	8.36 ~ 14.12mm	
Input Power (Max. Power Consumption)	DC 8.5 ~ 16V (50mA)	
Input Signal	VS or V signal	
Weight	50g	
Operating Temperature	-20 ~ +60°C	
Wiring Diagram		



Vari-Focal Lenses for Micro Camera

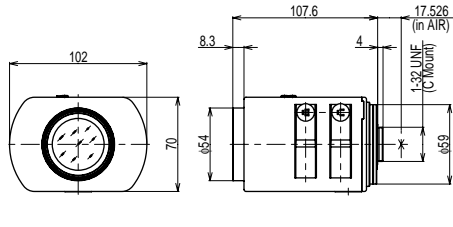
19YA



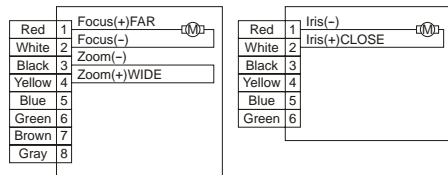
Imager	1/3	
Mount	M10.5 P=0.5mm	
Focal Length	6 ~ 12mm	
Aperture Range	Wide Tele	3 ~ 29 4.3 ~ 40
Angle of View (Horizontal X Vertical)	1/3 Wide Tele	44.2° X 33.2° 23.2° X 17.4°
	1/4 Wide Tele	33.2° X 24.9° 17.4° X 13.0°
Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual
	Zoom	Manual
	Iris	Manual
Filter Size	—	
Back Focus (in air)	Wide Tele	9.37mm 13.71mm
Weight	6.7g	
Operating Temperature	-5 ~ +50°C	

Motorized Zoom Lenses (Motorized Iris)

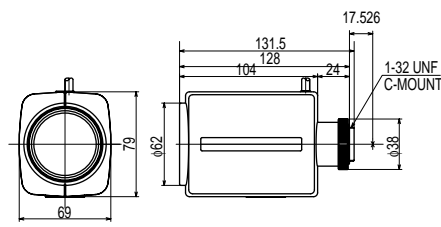
12ZM10×8T



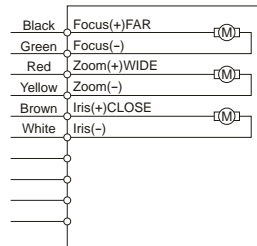
Imager Size	1/2	
Mount Type	C	
Focal Length	8 ~ 80mm	
Aperture Range	1.8 ~ 360	
Angle of View (Horizontal X Vertical)	1/2 Wide Tele	44.1° X 33.2° 4.6° X 3.5°
	1/3 Wide Tele	33.2° X 24.9° 3.5° X 2.6°
	1/4 Wide Tele	24.9° X 18.7° 2.6° X 1.9°
Focusing Range	1.17m ~ ∞	
Operation	Focus	Motorized
	Zoom	Motorized
	Iris	Motorized
Filter Size	M52 P=0.75mm	
Back Focus (in air)	14.01mm	
Input Power (Max. Power Consumption)	Focus	DC 6V or 12V (47mA)
	Zoom	DC 6V or 12V (47mA)
	Iris	DC 6V or 12V (32mA)
Weight	433g	
Operating Temperature	-5 ~ +50°C	
Wiring Diagram		



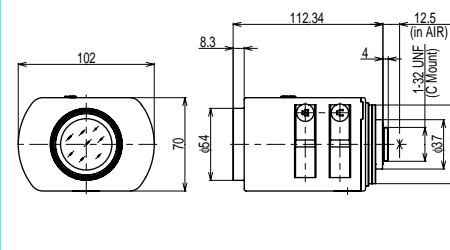
12ZM15×8



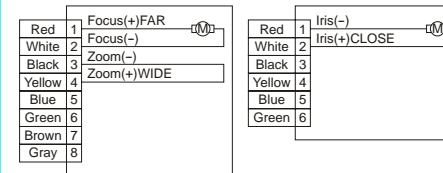
Imager Size	1/2	
Mount Type	C	
Focal Length	8 ~ 120mm	
Aperture Range	1.8 ~ 360	
Angle of View (Horizontal X Vertical)	1/2 Wide Tele	43.6° X 33.0° 3.1° X 2.4°
	1/3 Wide Tele	33.0° X 24.9° 2.4° X 1.8°
	1/4 Wide Tele	25.4° X 19.0° 1.8° X 1.4°
Focusing Range	1.2m ~ ∞	
Operation	Focus	Motorized
	Zoom	Motorized
	Iris	Motorized
Filter Size	M55 P=0.75mm	
Back Focus (in air)	14.66mm	
Input Power (Max. Power Consumption)	Focus	DC 8V (60mA)
	Zoom	DC 8V (60mA)
	Iris	DC 8V (60mA)
Weight	550g	
Operating Temperature	-10 ~ +50°C	
Wiring Diagram		



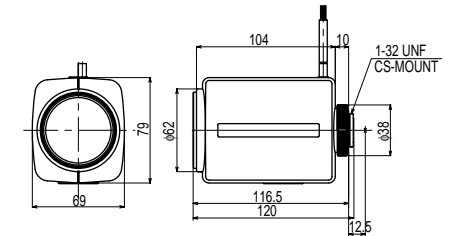
13ZM10×6T



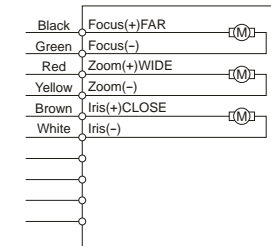
Imager Size	1/3	
Mount Type	C S	
Focal Length	6 ~ 60mm	
Aperture Range	1.4 ~ 360	
Angle of View (Horizontal X Vertical)	1/3 Wide Tele	43.4° X 32.7° 4.5° X 3.4°
	1/4 Wide Tele	32.6° X 24.5° 3.4° X 2.6°
Focusing Range	1.17m ~ ∞	
Operation	Focus	Motorized
	Zoom	Motorized
	Iris	Motorized
Filter Size	M52 P=0.75mm	
Back Focus (in air)	14.10mm	
Input Power (Max. Power Consumption)	Focus	DC 6V or 12V (47mA)
	Zoom	DC 6V or 12V (47mA)
	Iris	DC 6V or 12V (37mA)
Weight	433g	
Operating Temperature	-5 ~ +50°C	
Wiring Diagram		



13ZM15×6

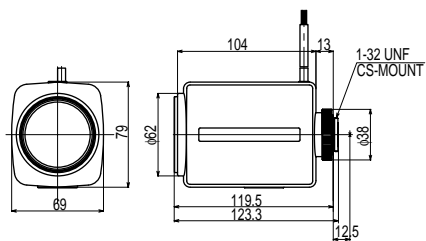


Imager Size	1/3	
Mount Type	C S	
Focal Length	6 ~ 90mm	
Aperture Range	1.6 ~ 360	
Angle of View (Horizontal X Vertical)	1/3 Wide Tele	44.2° X 33.5° 3.1° X 2.4°
	1/4 Wide Tele	34.2° X 25.7° 2.4° X 1.8°
Focusing Range	1.2m ~ ∞	
Operation	Focus	Motorized
	Zoom	Motorized
	Iris	Motorized
Filter Size	M55 P=0.75mm	
Back Focus (in air)	9.55mm	
Input Power (Max. Power Consumption)	Focus	DC 8V (60mA)
	Zoom	DC 8V (60mA)
	Iris	DC 8V (60mA)
Weight	530g	
Operating Temperature	-10 ~ +50°C	
Wiring Diagram		

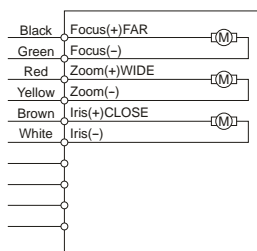


Motorized Zoom Lenses (Motorized Iris)

13ZM20×56

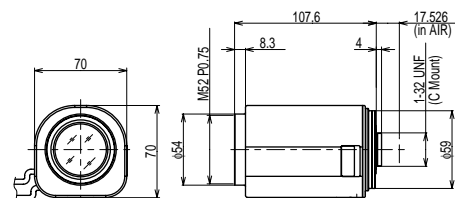


Imager Size	1/3		
Mount Type	C S		
Focal Length	5.6 ~ 112mm		
Aperture Range	1.6 ~ 360		
Angle of View (Horizontal X Vertical)	1/3 Wide Tele	47.6° X 35.7° 2.6° X 1.9°	
	1/4 Wide Tele	36.6° X 27.4° 2.0° X 1.5°	
Focusing Range	1.5m ~ ∞		
Operation	Focus	Motorized	
	Zoom	Motorized	
	Iris	Motorized	
Filter Size	M55 P=0.75mm		
Back Focus (in air)	8.97mm		
Input Power (Max. Power Consumption)	Focus	DC 8V (60mA)	
	Zoom	DC 8V (60mA)	
	Iris	DC 8V (60mA)	
Weight	570g		
Operating Temperature	-10 ~ +50°C		
Wiring Diagram			

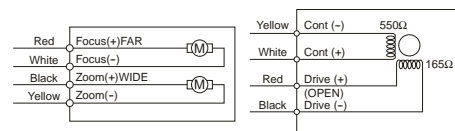


Motorized Zoom Lenses (DC Auto Iris)

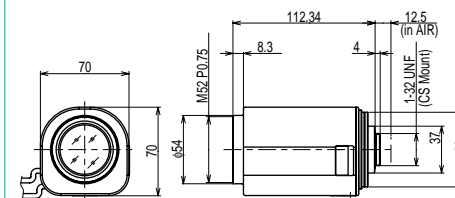
12ZG10×8CT



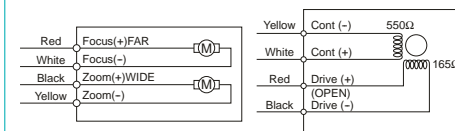
Imager Size	1/2		
Mount Type	C		
Focal Length	8 ~ 80mm		
Aperture Range	1.8 ~ 360		
Angle of View (Horizontal X Vertical)	1/2 Wide Tele	44.1° X 33.2° 4.6° X 3.5°	
	1/3 Wide Tele	33.2° X 24.9° 3.5° X 2.6°	
	1/4 Wide Tele	24.9° X 18.7° 2.6° X 1.9°	
Focusing Range	1.2m ~ ∞		
Operation	Focus	Motorized	
	Zoom	Motorized	
	Iris	Auto Iris (DC)	
Filter Size	M52 P=0.75mm		
Back Focus (in air)	14.01mm		
Input Power (Max. Power Consumption)	Focus	DC 6V or 12V (47mA)	
	Zoom	DC 6V or 12V (47mA)	
Iris Operating Voltage	Open 4.0V Close 0V		
Weight	380g		
Operating Temperature	-5 ~ +50°C		
Wiring Diagram			



13ZG10×6CT

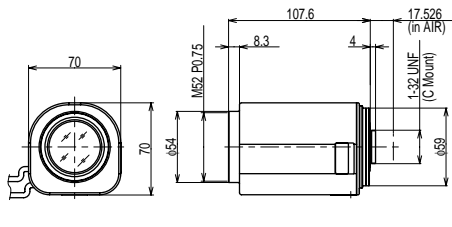


Imager Size	1/3		
Mount Type	C S		
Focal Length	6 ~ 60mm		
Aperture Range	1.4 ~ 360		
Angle of View (Horizontal X Vertical)	1/3 Wide Tele	43.4° X 32.7° 4.5° X 3.4°	
	1/4 Wide Tele	32.6° X 24.5° 3.4° X 2.6°	
Focusing Range	1.2m ~ ∞		
Operation	Focus	Motorized	
	Zoom	Motorized	
	Iris	Auto Iris (DC)	
Filter Size	M52 P=0.75mm		
Back Focus (in air)	14.10mm		
Input Power (Max. Power Consumption)	Focus	DC 6V or 12V (47mA)	
	Zoom	DC 6V or 12V (47mA)	
Iris Operating Voltage	Open 4.0V Close 0V		
Weight	380g		
Operating Temperature	-5 ~ +50°C		
Wiring Diagram			

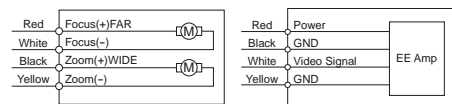


Motorized Zoom Lenses (Video Auto Iris)

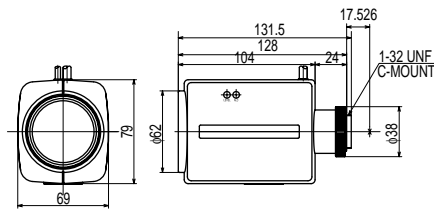
12ZA10×8CT



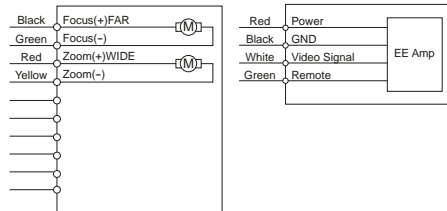
Imager Size	1/2	
Mount Type	C	
Focal Length	8 ~ 80mm	
Aperture Range	1.8 ~ 360	
Angle of View (Horizontal X Vertical)	1/2 Wide Tele	44.1° X 33.2° 4.6° X 3.5°
	1/3 Wide Tele	33.2° X 24.9° 3.5° X 2.6°
	1/4 Wide Tele	24.9° X 18.7° 2.6° X 1.9°
Focusing Range	1.2m ~ ∞	
Operation	Focus	Motorized
	Zoom	Motorized
	Iris	Auto Iris (Video)
Filter Size	M52 P=0.75mm	
Back Focus (in air)	14.01mm	
Input Power (Max. Power Consumption)	Focus	DC 6V or 12V (47mA)
	Zoom	DC 6V or 12V (47mA)
Power Voltage(for Auto Iris)	DC 8V or 13V (50mA)	
Input Signal	VS or V signal	
A.L.C.	Average-Peak	
Weight	380g	
Operating Temperature	-5 ~ +50°C	
Wiring Diagram		



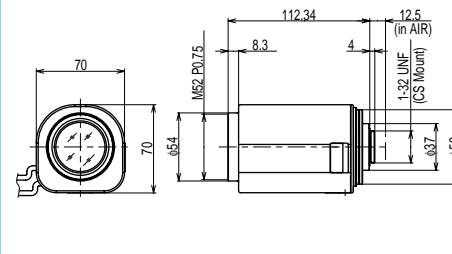
12ZA15×8



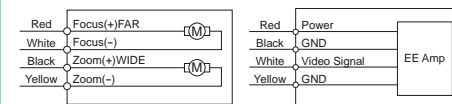
Imager Size	1/2	
Mount Type	C	
Focal Length	8 ~ 120mm	
Aperture Range	1.8 ~ 360	
Angle of View (Horizontal X Vertical)	1/2 Wide Tele	43.6° X 33.0° 3.1° X 2.4°
	1/3 Wide Tele	33.0° X 24.9° 2.4° X 1.8°
	1/4 Wide Tele	25.4° X 19.0° 1.8° X 1.4°
Focusing Range	1.2m ~ ∞	
Operation	Focus	Motorized
	Zoom	Motorized
	Iris	Auto Iris (Video)
Filter Size	M55 P=0.75mm	
Back Focus (in air)	14.66mm	
Input Power (Max. Power Consumption)	Focus	DC 8V (60mA)
	Zoom	DC 8V (60mA)
Power Voltage(for Auto Iris)	DC 8 ~ 16V (40mA)	
Input Signal	VS or V signal	
A.L.C.	Average-Peak	
Weight	550g	
Operating Temperature	-10 ~ +50°C	
Wiring Diagram		



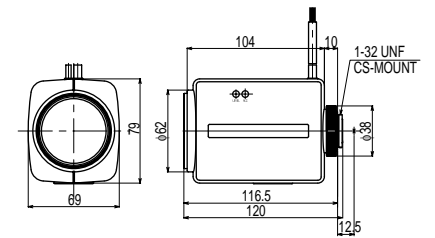
13ZA10×6CT



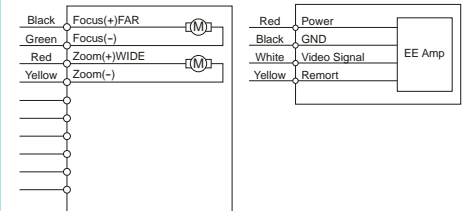
Imager Size	1/3	
Mount Type	C S	
Focal Length	6 ~ 60mm	
Aperture Range	1.4 ~ 360	
Angle of View (Horizontal X Vertical)	1/3 Wide Tele	43.4° X 32.7° 4.5° X 3.4°
	1/4 Wide Tele	32.6° X 24.5° 3.4° X 2.6°
Focusing Range	1.2m ~ ∞	
Operation	Focus	Motorized
	Zoom	Motorized
	Iris	Auto Iris (Video)
Filter Size	M52 P=0.75mm	
Back Focus (in air)	14.10mm	
Input Power (Max. Power Consumption)	Focus	DC 6V or 12V (47mA)
	Zoom	DC 6V or 12V (47mA)
Power Voltage(for Auto Iris)	DC 8 ~ 13V (50mA)	
Input Signal	VS or V signal	
A.L.C.	Average-Peak	
Weight	380g	
Operating Temperature	-5 ~ +50°C	
Wiring Diagram		



13ZA15×6

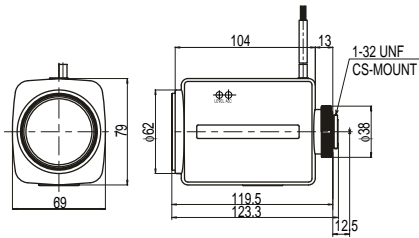


Imager Size	1/3	
Mount Type	C S	
Focal Length	6 ~ 90mm	
Aperture Range	1.6 ~ 360	
Angle of View (Horizontal X Vertical)	1/3 Wide Tele	44.2° X 33.5° 3.1° X 2.4°
	1/4 Wide Tele	34.2° X 25.7° 2.4° X 1.8°
Focusing Range	1.2m ~ ∞	
Operation	Focus	Motorized
	Zoom	Motorized
	Iris	Auto Iris (Video)
Filter Size	M55 P=0.75mm	
Back Focus (in air)	9.55mm	
Input Power (Max. Power Consumption)	Focus	DC 8V (60mA)
	Zoom	DC 8V (60mA)
Power Voltage(for Auto Iris)	DC 8 ~ 16V (40mA)	
Input Signal	VS or V signal	
A.L.C.	Average-Peak	
Weight	530g	
Operating Temperature	-10 ~ +50°C	
Wiring Diagram		

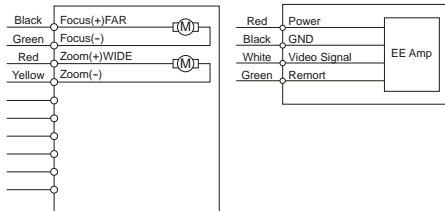


Motorized Zoom Lenses (Video Auto Iris)

13ZA20×56

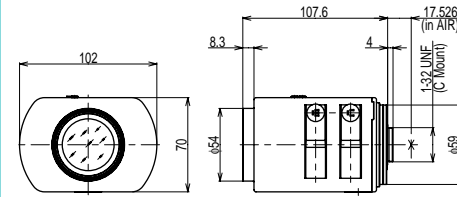


Imager Size	1/3	
Mount Type	C S	
Focal Length	5.6 ~ 112mm	
Aperture Range	1.6 ~ 360	
Angle of View (Horizontal X Vertical)	1/3 Wide Tele	47.6° X 35.7° 2.6° X 1.9°
	1/4 Wide Tele	36.6° X 27.4° 2.0° X 1.5°
Focusing Range	1.5m ~ ∞	
Operation	Focus	Motorized
	Zoom	Motorized
	Iris	Auto Iris (Video)
Filter Size	M55 P=0.75mm	
Back Focus (in air)	8.97mm	
Input Power (Max. Power Consumption)	Focus	DC 8V (60mA)
	Zoom	DC 8V (60mA)
Power Voltage(for Auto Iris)	DC 8 ~ 16V (40mA)	
Input Signal	VS or V signal	
A.L.C.	Average-Peak	
Weight	550g	
Operating Temperature	-10 ~ +50°C	
Wiring Diagram		

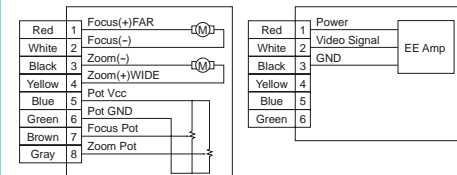


Motorized Zoom Lenses (Video Auto Iris) w/Presets for Focus/Zoom

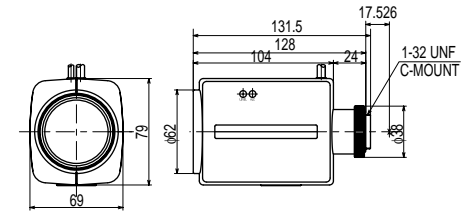
12ZA10×8PT



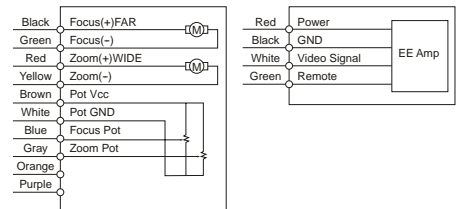
Imager Size	1/2	
Mount Type	C	
Focal Length	8 ~ 80mm	
Aperture Range	1.8 ~ 360	
Angle of View (Horizontal X Vertical)	1/2 Wide Tele	44.1° X 33.2° 4.6° X 3.5°
	1/3 Wide Tele	33.2° X 24.9° 3.5° X 2.6°
	1/4 Wide Tele	24.9° X 18.7° 2.6° X 1.9°
Focusing Range	1.17m ~ ∞	
Operation	Focus	Motorized
	Zoom	Motorized
	Iris	Auto Iris (Video)
Filter Size	M52 P=0.75mm	
Back Focus (in air)	14.01mm	
Input Power (Max. Power Consumption)	Focus	DC 6V or 12V (47mA)
	Zoom	DC 6V or 12V (47mA)
Power Voltage(for Auto Iris)	DC 8 ~ 13V(50mA)	
Input Signal	VS or V signal	
A.L.C.	Average-Peak	
Weight	395g	
Operating Temperature	-5 ~ +50°C	
Remarks	w/Presets for Focus/Zoom	
Wiring Diagram		



12ZA15×8P

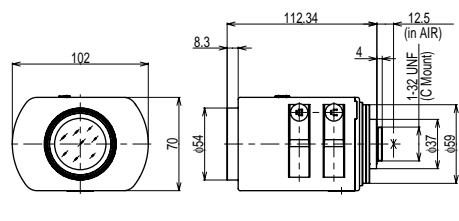


Imager Size	1/2	
Mount Type	C	
Focal Length	8 ~ 120mm	
Aperture Range	1.8 ~ 360	
Angle of View (Horizontal X Vertical)	1/2 Wide Tele	43.6° X 33.0° 3.1° X 2.4°
	1/3 Wide Tele	33.0° X 24.9° 2.4° X 1.8°
	1/4 Wide Tele	25.4° X 19° 1.8° X 1.4°
Focusing Range	1.2m ~ ∞	
Operation	Focus	Motorized
	Zoom	Motorized
	Iris	Auto Iris (Video)
Filter Size	M55 P=0.75mm	
Back Focus (in air)	14.66mm	
Input Power (Max. Power Consumption)	Focus	DC 8V (60mA)
	Zoom	DC 8V (60mA)
Power Voltage(for Auto Iris)	DC 8 ~ 16V (40mA)	
Input Signal	VS or V signal	
A.L.C.	Average-Peak	
Weight	570g	
Operating Temperature	-10 ~ +50°C	
Remarks	w/Presets for Focus/Zoom	
Wiring Diagram		

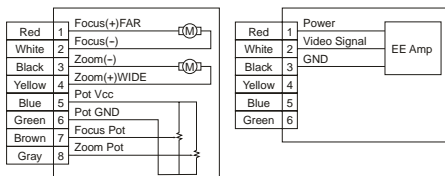


Motorized Zoom Lenses (Video Auto Iris) w/Presets for Focus/Zoom

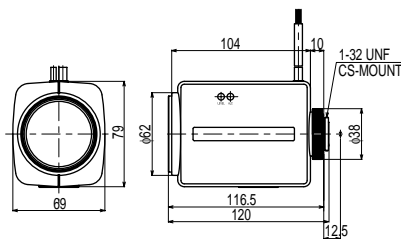
13ZA10×6PT



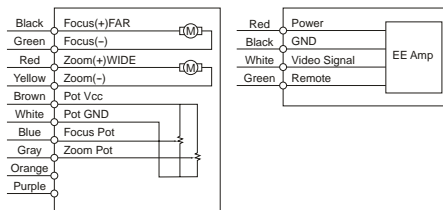
Imager Size	1/3	
Mount Type	C S	
Focal Length	6 ~ 60mm	
Aperture Range	1.4 ~ 360	
Angle of View (Horizontal X Vertical)	1/3 Wide Tele	43.4° X 32.7° 4.5° X 3.4°
	1/4 Wide Tele	32.6° X 24.5° 3.4° X 2.6°
Focusing Range	1.17m ~ ∞	
Operation	Focus	Motorized
	Zoom	Motorized
	Iris	Auto Iris (Video)
Filter Size	M52 P=0.75mm	
Back Focus (in air)	14.10mm	
Input Power (Max. Power Consumption)	Focus	DC 6V or 12V (47mA)
	Zoom	DC 6V or 12V (47mA)
Power Voltage (for Auto Iris)	DC 8 ~ 13V (50mA)	
Input Signal	VS or V signal	
A.L.C.	Average-Peak	
Weight	395g	
Operating Temperature	-5 ~ +50°C	
Remarks	w/Presets for Focus/Zoom	
Wiring Diagram		



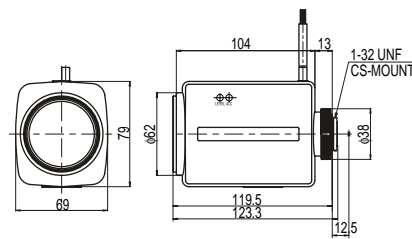
13ZA15×6P



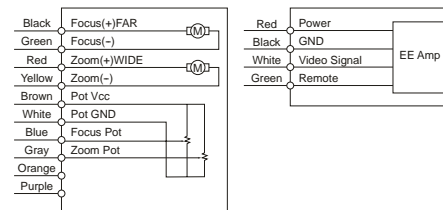
Imager Size	1/3	
Mount Type	C S	
Focal Length	6 ~ 90mm	
Aperture Range	1.6 ~ 360	
Angle of View (Horizontal X Vertical)	1/3 Wide Tele	44.2° X 33.5° 3.1° X 2.4°
	1/4 Wide Tele	34.2° X 25.7° 2.4° X 1.8°
Focusing Range	1.2m ~ ∞	
Operation	Focus	Motorized
	Zoom	Motorized
	Iris	Auto Iris (Video)
Filter Size	M55 P=0.75mm	
Back Focus (in air)	9.55mm	
Input Power (Max. Power Consumption)	Focus	DC 8V (60mA)
	Zoom	DC 8V (60mA)
Power Voltage (for Auto Iris)	DC 8 ~ 16V (40mA)	
Input Signal	VS or V signal	
A.L.C.	Average-Peak	
Weight	550g	
Operating Temperature	-10 ~ +50°C	
Remarks	w/Presets for Focus/Zoom	
Wiring Diagram		



13ZA20×56P

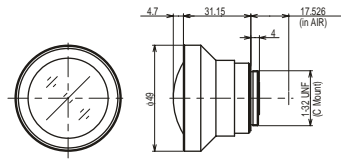


Imager Size	1/3	
Mount Type	C S	
Focal Length	5.6 ~ 112mm	
Aperture Range	1.6 ~ 360	
Angle of View (Horizontal X Vertical)	1/3 Wide Tele	47.6° X 35.7° 2.6° X 1.9°
	1/4 Wide Tele	36.6° X 27.4° 2.0° X 1.5°
Focusing Range	1.5m ~ ∞	
Operation	Focus	Motorized
	Zoom	Motorized
	Iris	Auto Iris (Video)
Filter Size	M55 P=0.75mm	
Back Focus (in air)	8.97mm	
Input Power (Max. Power Consumption)	Focus	DC 8V (60mA)
	Zoom	DC 8V (60mA)
Power Voltage (for Auto Iris)	DC 8.0 ~ 16.0V (40mA)	
Input Signal	VS or V signal	
A.L.C.	Average-Peak	
Weight	570g	
Operating Temperature	-10 ~ +50°C	
Remarks	w/Presets for Focus/Zoom	
Wiring Diagram		



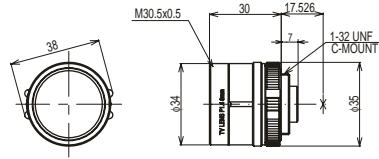
Fixed-Focal Lenses (Manual Iris)

23FO45T



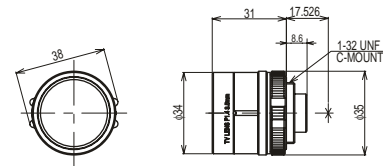
Imager Size	2/3	
Mount Type	C	
Focal Length	4.5mm	
Aperture Range	2.0	
Angle of View (Horizontal X Vertical)	2/3	107.6° X 80.3°
	1/2	77.8° X 58.2°
	1/3	58.2° X 43.5°
	1/4	-----
Focusing Range	0.2m ~ ∞	
Operation	Focus	Fixed
	Iris	Fixed
Filter Size	-----	
Back Focus (in air)	8.82mm	
Weight	130g	
Operating Temperature	-10 ~ +50°C	

23FM08



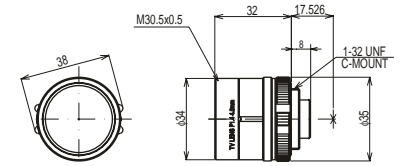
Imager Size	2/3	
Mount Type	C	
Focal Length	8mm	
Aperture Range	1.4 ~ Close	
Angle of View (Horizontal X Vertical)	2/3	64.2° X 47.7°
	1/2	46.2° X 34.6°
	1/3	34.5° X 28.6°
	1/4	26.5° X 19.5°
Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual
	Iris	Manual
Filter Size	M30.5 P=0.5mm	
Back Focus (in air)	11.30mm	
Weight	50g	
Operating Temperature	-10 ~ +45°C	

12FM35



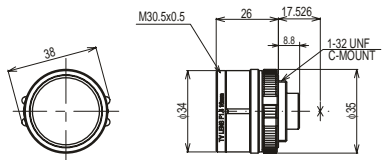
Imager Size	1/2	
Mount Type	C	
Focal Length	3.5mm	
Aperture Range	1.4 ~ Close	
Angle of View (Horizontal X Vertical)	1/2	103.6° X 76.6°
	1/3	77.0° X 57.7°
	1/4	58.4° X 43.4°
	-----	-----
Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual
	Iris	Manual
Filter Size	-----	
Back Focus (in air)	8.89mm	
Weight	56g	
Operating Temperature	-10 ~ +45°C	

12FM45



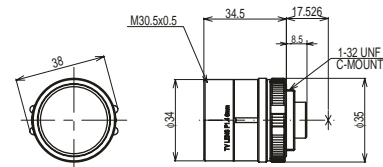
Imager Size	1/2	
Mount Type	C	
Focal Length	4.5mm	
Aperture Range	1.4 ~ Close	
Angle of View (Horizontal X Vertical)	1/2	79.0° X 59.4°
	1/3	59.7° X 45.1°
	1/4	45.6° X 34.1°
	-----	-----
Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual
	Iris	Manual
Filter Size	M30.5 P=0.5mm	
Back Focus (in air)	9.96mm	
Weight	54g	
Operating Temperature	-10 ~ +45°C	

23FM16



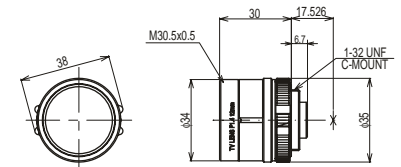
Imager Size	2/3	
Mount Type	C	
Focal Length	16mm	
Aperture Range	1.4 ~ Close	
Angle of View (Horizontal X Vertical)	2/3	31.1° X 23.1°
	1/2	22.3° X 16.7°
	1/3	16.7° X 12.5°
	1/4	12.7° X 9.5°
Focusing Range	0.5m ~ ∞	
Operation	Focus	Manual
	Iris	Manual
Filter Size	M30.5 P=0.5mm	
Back Focus (in air)	10.32mm	
Weight	37g	
Operating Temperature	-10 ~ +45°C	

12FM06



Imager Size	1/2	
Mount Type	C	
Focal Length	6mm	
Aperture Range	1.4 ~ Close	
Angle of View (Horizontal X Vertical)	1/2	57.3° X 44.0°
	1/3	44.2° X 33.7°
	1/4	33.6° X 25.3°
	-----	-----
Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual
	Iris	Manual
Filter Size	M30.5 P=0.5mm	
Back Focus (in air)	9.46mm	
Weight	36g	
Operating Temperature	-10 ~ +45°C	

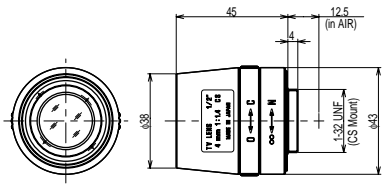
12FM12



Imager Size	1/2	
Mount Type	C	
Focal Length	12mm	
Aperture Range	1.4 ~ Close	
Angle of View (Horizontal X Vertical)	1/2	30.7° X 23.0°
	1/3	23.0° X 17.2°
	1/4	17.5° X 13.1°
	-----	-----
Focusing Range	0.3m ~ ∞	
Operation	Focus	Manual
	Iris	Manual
Filter Size	M30.5 P=0.5mm	
Back Focus (in air)	11.09mm	
Weight	51g	
Operating Temperature	-10 ~ +45°C	

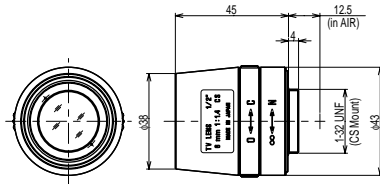
Fixed-Focal Lenses (Manual Iris)

12FM04CST



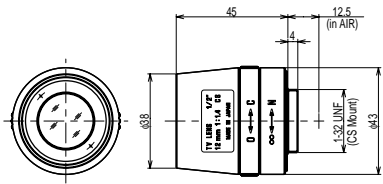
Imager Size	1/2	
Mount Type	C S	
Focal Length	4mm	
Aperture Range	1.4 ~ Close	
Angle of View (Horizontal X Vertical)	1/2	87.3° X 66.2°
	1/3	66.2° X 50.0°
	1/4	49.9° X 37.5°
Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual
	Iris	Manual
Filter Size	-----	
Back Focus (in air)	10.69mm	
Weight	60g	
Operating Temperature	-5 ~ +50°C	

12FM06CST



Imager Size	1/2	
Mount Type	C S	
Focal Length	6mm	
Aperture Range	1.4 ~ Close	
Angle of View (Horizontal X Vertical)	1/2	60.0° X 45.1°
	1/3	45.1° X 33.8°
	1/4	33.8° X 25.3°
Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual
	Iris	Manual
Filter Size	-----	
Back Focus (in air)	10.88mm	
Weight	62g	
Operating Temperature	-5 ~ +50°C	

12FM12CST

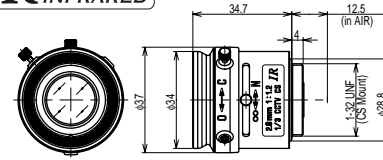


Imager Size	1/2	
Mount Type	C S	
Focal Length	12mm	
Aperture Range	1.4 ~ Close	
Angle of View (Horizontal X Vertical)	1/2	31.4° X 23.3°
	1/3	23.3° X 17.3°
	1/4	17.3° X 12.9°
Focusing Range	0.5m ~ ∞	
Operation	Focus	Manual
	Iris	Manual
Filter Size	-----	
Back Focus (in air)	13.47mm	
Weight	53.5g	
Operating Temperature	-5 ~ +50°C	

Fixed-Focal Lenses (Manual Iris/IR Corrected)

13FM28IR

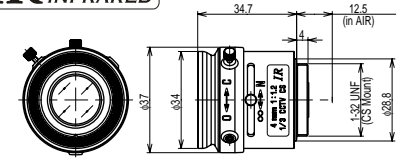
IR INFRARED



Imager Size	1/3	
Mount Type	C S	
Focal Length	2.8mm	
Aperture Range	1.2 ~ Close	
Angle of View (Horizontal X Vertical)	1/3	93.2° X 70.7°
	1/4	70.7° X 53.4°
Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual w/Lock
	Iris	Manual w/Lock
Filter Size	-----	
Back Focus (in air)	8.58mm	
Weight	36g	
Operating Temperature	-20 ~ +60°C	

13FM04IR

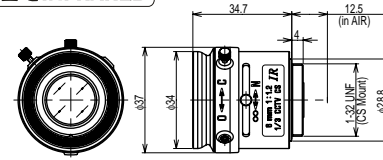
IR INFRARED



Imager Size	1/3	
Mount Type	C S	
Focal Length	4mm	
Aperture Range	1.2 ~ Close	
Angle of View (Horizontal X Vertical)	1/3	65.6° X 49.7°
	1/4	49.7° X 37.4°
Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual w/Lock
	Iris	Manual w/Lock
Filter Size	-----	
Back Focus (in air)	8.57mm	
Weight	33g	
Operating Temperature	-20 ~ +60°C	

13FM06IR

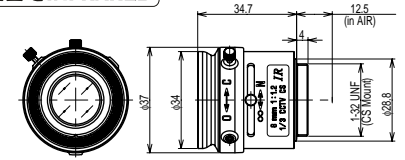
IR INFRARED



Imager Size	1/3	
Mount Type	C S	
Focal Length	6mm	
Aperture Range	1.2 ~ Close	
Angle of View (Horizontal X Vertical)	1/3	46.5° X 34.6°
	1/4	34.6° X 25.9°
Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual w/Lock
	Iris	Manual w/Lock
Filter Size	-----	
Back Focus (in air)	8.92mm	
Weight	32g	
Operating Temperature	-20 ~ +60°C	

13FM08IR

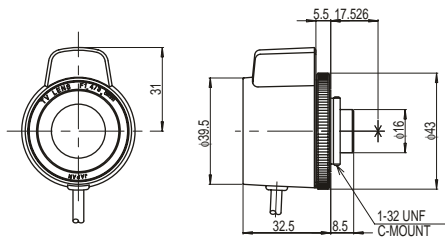
IR INFRARED



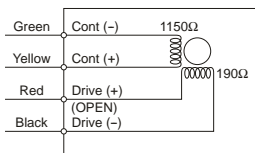
Imager Size	1/3	
Mount Type	C S	
Focal Length	8mm	
Aperture Range	1.2 ~ Close	
Angle of View (Horizontal X Vertical)	1/3	34.5° X 25.7°
	1/4	25.7° X 19.2°
Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual w/Lock
	Iris	Manual w/Lock
Filter Size	-----	
Back Focus (in air)	9.89mm	
Weight	33g	
Operating Temperature	-20 ~ +60°C	

Fixed-Focal Lenses (DC Auto Iris)

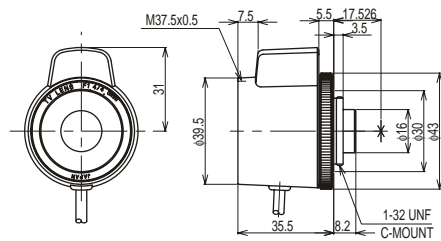
12FG35



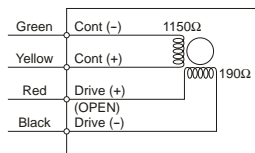
Imager Size	1/2	
Mount Type	C	
Focal Length	3.5mm	
Aperture Range	1.4 ~ 360	
Angle of View (Horizontal X Vertical)	1/2	103.6° X 76.6°
	1/3	77.0° X 57.7°
	1/4	58.4° X 43.3°
Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual
	Iris	Auto Iris (DC)
Filter Size	—	
Back Focus (in air)	8.89mm	
Operating Voltage	Open 4.0V Close 0V	
Weight	82g	
Operating Temperature	-10 ~ +45°C	
Wiring Diagram		



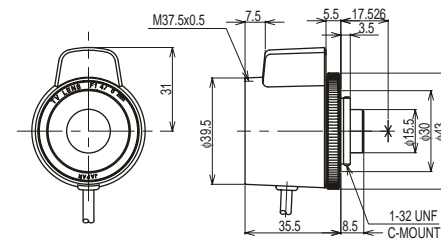
12FG45



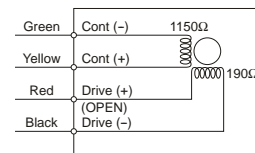
Imager Size	1/2	
Mount Type	C	
Focal Length	4.5mm	
Aperture Range	1.4 ~ 360	
Angle of View (Horizontal X Vertical)	1/2	79.0° X 59.4°
	1/3	59.7° X 45.1°
	1/4	45.6° X 34.1°
Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual
	Iris	Auto Iris (DC)
Filter Size	M37.5 P=0.5mm	
Back Focus (in air)	9.96mm	
Operating Voltage	Open 4.0V Close 0V	
Weight	82g	
Operating Temperature	-10 ~ +45°C	
Wiring Diagram		



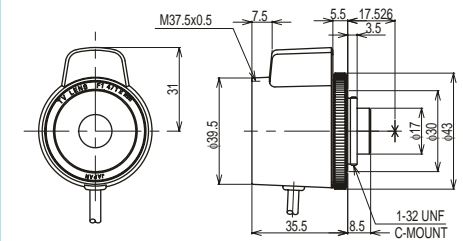
12FG06



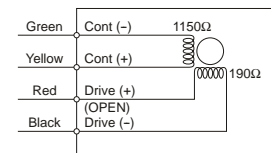
Imager Size	1/2	
Mount Type	C	
Focal Length	6mm	
Aperture Range	1.4 ~ 360	
Angle of View (Horizontal X Vertical)	1/2	57.3° X 44.0°
	1/3	44.2° X 33.7°
	1/4	33.6° X 25.3°
Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual
	Iris	Auto Iris (DC)
Filter Size	M37.5 P=0.5mm	
Back Focus (in air)	9.46mm	
Operating Voltage	Open 4.0V Close 0V	
Weight	75g	
Operating Temperature	-10 ~ +45°C	
Wiring Diagram		



12FG12

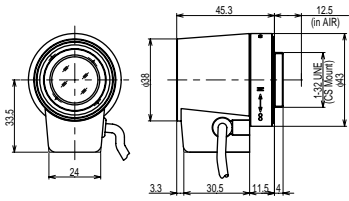


Imager Size	1/2	
Mount Type	C	
Focal Length	12mm	
Aperture Range	1.4 ~ 360	
Angle of View (Horizontal X Vertical)	1/2	30.7° X 23.0°
	1/3	23.0° X 17.2°
	1/4	17.5° X 13.1°
Focusing Range	0.3m ~ ∞	
Operation	Focus	Manual
	Iris	Auto Iris (DC)
Filter Size	M37.5 P=0.5mm	
Back Focus (in air)	11.09mm	
Operating Voltage	Open 4.0V Close 0V	
Weight	76g	
Operating Temperature	-10 ~ +45°C	
Wiring Diagram		



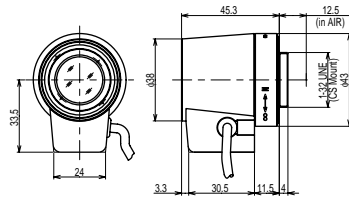
Fixed-Focal Lenses (DC Auto Iris)

12FG04CST



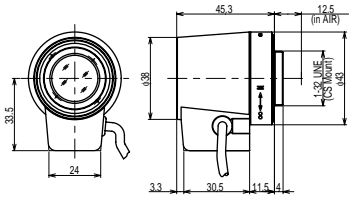
Imager Size	1/2	
Mount Type	CS	
Focal Length	4mm	
Aperture Range	1.4 ~ 150	
Angle of View (Horizontal X Vertical)	1/2	87.3° X 66.2°
	1/3	66.2° X 50.0°
	1/4	49.9° X 37.5°
Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual
	Iris	Auto Iris (DC)
Filter Size	-----	
Back Focus (in air)	10.69mm	
Operating Voltage	Open 4V Close 0.5V	
Weight	73g	
Operating Temperature	-5 ~ +50°C	

12FG06CST



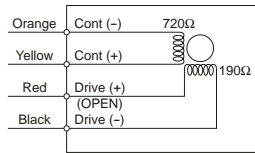
Imager Size	1/2	
Mount Type	CS	
Focal Length	6mm	
Aperture Range	1.4 ~ 150	
Angle of View (Horizontal X Vertical)	1/2	60.0° X 45.1°
	1/3	45.1° X 33.8°
	1/4	33.8° X 25.3°
Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual
	Iris	Auto Iris (DC)
Filter Size	-----	
Back Focus (in air)	10.88mm	
Operating Voltage	Open 4V Close 0.5V	
Weight	75g	
Operating Temperature	-5 ~ +50°C	

12FG12CST



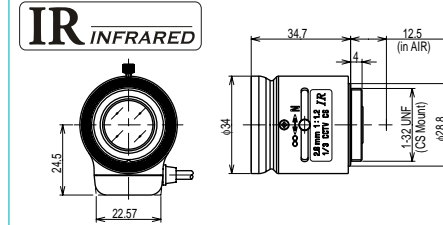
Imager Size	1/2	
Mount Type	CS	
Focal Length	12mm	
Aperture Range	1.4 ~ 200	
Angle of View (Horizontal X Vertical)	1/2	31.4° X 23.3°
	1/3	23.3° X 17.3°
	1/4	17.3° X 12.9°
Focusing Range	0.5m ~ ∞	
Operation	Focus	Manual
	Iris	Auto Iris (DC)
Filter Size	-----	
Back Focus (in air)	13.47mm	
Operating Voltage	Open 4V Close 0.5V	
Weight	66g	
Operating Temperature	-5 ~ +50°C	

Wiring Diagram
(12FG04CST
12FG06CST
12FG12CST)



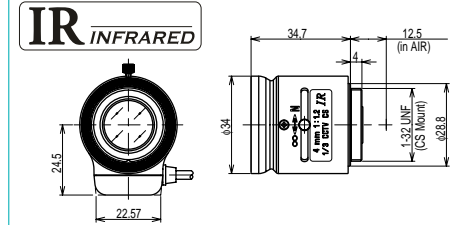
Fixed-Focal Lenses (DC Auto Iris/IR Corrected)

13FG28IR



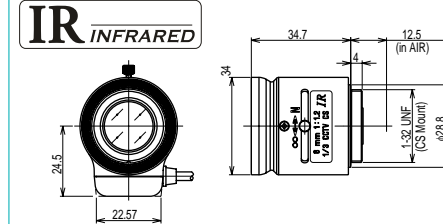
Imager Size	1/3	
Mount	CS	
Focal Length	2.8mm	
Aperture Range	1.2 ~ 360	
Angle of View	1/3	93.2° X 70.7°
	1/4	70.7° X 53.4°
Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual w/Lock
	Iris	Auto Iris (DC)
Filter Size	-----	
Back Focus (in air)	8.58mm	
Operating Voltage	Open 2.5V Close 0.5V	
Weight	44g	
Operating Temperature	-20 ~ +60°C	

13FG04IR



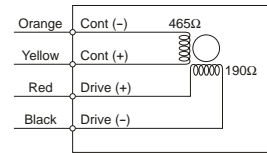
Imager Size	1/3	
Mount	CS	
Focal Length	4mm	
Aperture Range	1.2 ~ 360	
Angle of View	1/3	65.6° X 49.7°
	1/4	49.7° X 37.4°
Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual w/Lock
	Iris	Auto Iris (DC)
Filter Size	-----	
Back Focus (in air)	8.57mm	
Operating Voltage	Open 2.5V Close 0.5V	
Weight	40g	
Operating Temperature	-20 ~ +60°C	

13FG06IR



Imager Size	1/3	
Mount	CS	
Focal Length	6mm	
Aperture Range	1.2 ~ 360	
Angle of View	1/3	46.5° X 34.6°
	1/4	34.6° X 25.9°
Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual w/Lock
	Iris	Auto Iris (DC)
Filter Size	-----	
Back Focus (in air)	8.92mm	
Operating Voltage	Open 2.5V Close 0.5V	
Weight	38g	
Operating Temperature	-20 ~ +60°C	

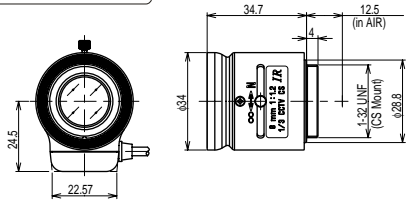
Wiring Diagram
(13FG28IR
13FG04IR
13FG06IR)



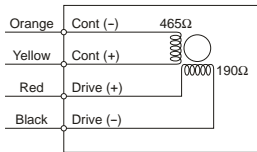
Fixed-Focal Lenses (DC Auto Iris/IR Corrected)

13FG08IR

IR INFRARED

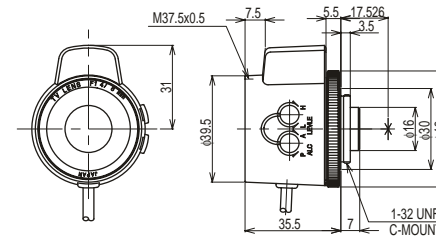


Imager Size	1/3	
Mount Type	C S	
Focal Length	8mm	
Aperture Range	1.2 ~ 360	
Angle of View (Horizontal X Vertical)	1/3	34.5° X 25.7°
	1/4	25.7° X 19.2°
Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual w/Lock
	Iris	Auto Iris (DC)
Filter Size	—	
Back Focus (in air)	9.89mm	
Operating Voltage	Open 2.5V Close 0.5V	
Weight	40g	
Operating Temperature	-20 ~ +60°C	
Wiring Diagram		

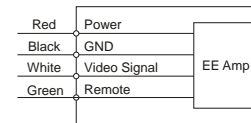


Fixed-Focal Lenses (Video Auto Iris)

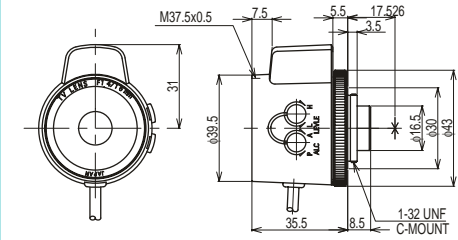
23FA08



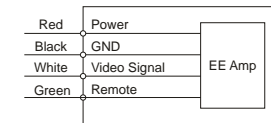
Imager Size	2/3	
Mount Type	C	
Focal Length	8mm	
Aperture Range	1.4 ~ 360	
Angle of View (Horizontal X Vertical)	2/3	64.2° X 47.3°
	1/2	46.2° X 34.6°
	1/3	34.5° X 28.6°
	1/4	26.5° X 19.5°
Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual
	Iris	Auto Iris (Video)
Filter Size	M37.5 P=0.5mm	
Back Focus (in air)	11.30mm	
Input Power (Max.Power Consumption)	DC 8.0~16.0V (35mA)	
Input Signal	VS or V signal	
A.L.C	Average-Peak	
Weight	85g	
Operating Temperature	-10 ~ +45°C	
Wiring Diagram		



23FA16

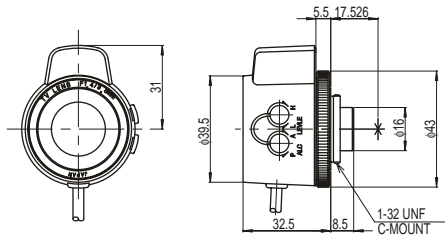


Imager Size	2/3	
Mount Type	C	
Focal Length	16mm	
Aperture Range	1.4 ~ 360	
Angle of View (Horizontal X Vertical)	2/3	31.1° X 23.1°
	1/2	22.3° X 16.7°
	1/3	16.7° X 12.5°
	1/4	12.7° X 9.5°
Focusing Range	0.5m ~ ∞	
Operation	Focus	Manual
	Iris	Auto Iris (Video)
Filter Size	M37.5 P=0.5mm	
Back Focus (in air)	10.32mm	
Input Power (Max.Power Consumption)	DC 8.0~16.0V (35mA)	
Input Signal	VS or V signal	
A.L.C	Average-Peak	
Weight	80g	
Operating Temperature	-10 ~ +45°C	
Wiring Diagram		

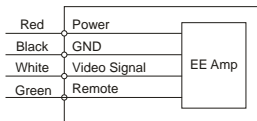


Fixed-Focal Lenses (Video Auto Iris)

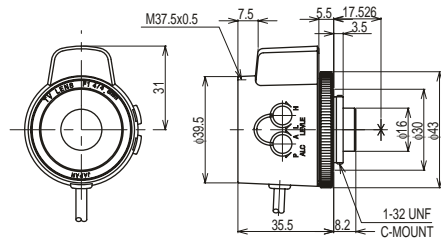
12FA35



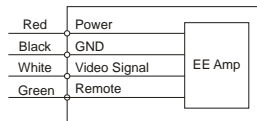
Imager Size	1/2	
Mount Type	C	
Focal Length	3.5mm	
Aperture Range	1.4 ~ 360	
Angle of View (Horizontal X Vertical)	1/2	103.6° X 76.6°
	1/3	77.0° X 57.7°
	1/4	58.4° X 43.4°
Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual
	Iris	Auto Iris (Video)
Filter Size	—	
Back Focus (in air)	8.89mm	
Input Power (Max.Power Consumption)	DC 8.0~16.0V (35mA)	
Input Signal	VS or V signal	
A.L.C	Average-Peak	
Weight	85g	
Operating Temperature	-10 ~ +45°C	
Wining Diagram		



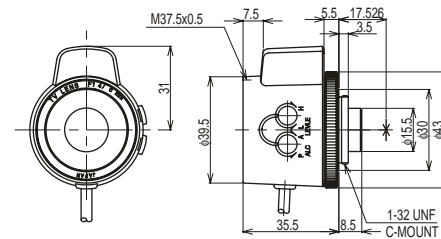
12FA45



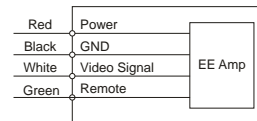
Imager Size	1/2	
Mount Type	C	
Focal Length	4.5mm	
Aperture Range	1.4 ~ 360	
Angle of View (Horizontal X Vertical)	1/2	79.0° X 59.4°
	1/3	59.7° X 45.1°
	1/4	45.6° X 34.1°
Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual
	Iris	Auto Iris (Video)
Filter Size	M37.5 P=0.5mm	
Back Focus (in air)	9.96mm	
Input Power (Max.Power Consumption)	DC 8.0~16.0V (35mA)	
Input Signal	VS or V signal	
A.L.C	Average-Peak	
Weight	85g	
Operating Temperature	-10 ~ +45°C	
Wining Diagram		



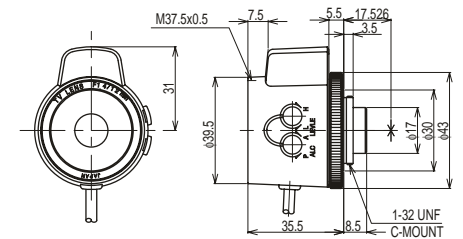
12FA06



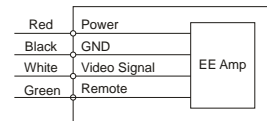
Imager Size	1/2	
Mount Type	C	
Focal Length	6mm	
Aperture Range	1.4 ~ 360	
Angle of View (Horizontal X Vertical)	1/2	57.3° X 44.0°
	1/3	44.2° X 33.7°
	1/4	33.6° X 25.3°
Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual
	Iris	Auto Iris (Video)
Filter Size	M37.5 P=0.5mm	
Back Focus (in air)	9.46mm	
Input Power (Max.Power Consumption)	DC 8.0~16.0V (35mA)	
Input Signal	VS or V signal	
A.L.C	Average-Peak	
Weight	78g	
Operating Temperature	-10 ~ +45°C	
Wining Diagram		



12FA12

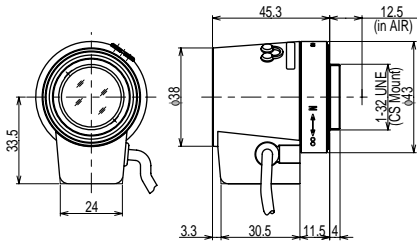


Imager Size	1/2	
Mount Type	C	
Focal Length	12mm	
Aperture Range	1.4 ~ 360	
Angle of View (Horizontal X Vertical)	1/2	30.7° X 23.0°
	1/3	23.0° X 17.2°
	1/4	17.5° X 13.1°
Focusing Range	0.3m ~ ∞	
Operation	Focus	Manual
	Iris	Auto Iris (Video)
Filter Size	M37.5 P=0.5mm	
Back Focus (in air)	11.9mm	
Input Power (Max.Power Consumption)	DC 8.0~16.0V (35mA)	
Input Signal	VS or V signal	
A.L.C	Average-Peak	
Weight	79g	
Operating Temperature	-10 ~ +45°C	
Wining Diagram		



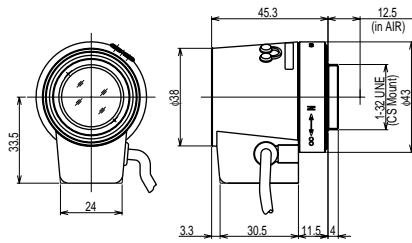
Fixed-Focal Lenses (Video Auto Iris)

12FA04CST



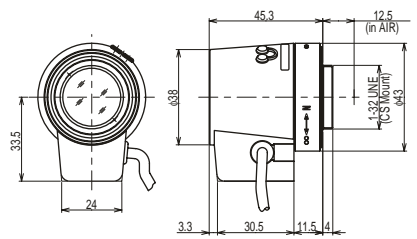
Imager Size	1/2
Mount Type	C S
Focal Length	4mm
Aperture Range	1.4 ~ 150
Angle of View (Horizontal X Vertical)	1/2 87.3° X 66.2° 1/3 66.2° X 50.0° 1/4 49.9° X 37.5°
Focusing Range	0.2m ~ ∞
Operation	Focus Manual Iris Auto Iris (Video)
Filter Size	—
Back Focus (in air)	10.69mm
Input Power (Max. Power Consumption)	DC 8.5 ~ 16.0V (50mA)
Input Signal	VS or v signal
A.L.C.	Average-Peak
Weight	76g
Operating Temperature	-5 ~ +50°C

12FA06CST



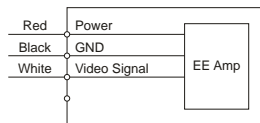
Imager Size	1/2
Mount Type	C S
Focal Length	6mm
Aperture Range	1.4 ~ 150
Angle of View (Horizontal X Vertical)	1/2 60.0° X 45.1° 1/3 45.1° X 33.8° 1/4 33.8° X 25.3°
Focusing Range	0.2m ~ ∞
Operation	Focus Manual Iris Auto Iris (Video)
Filter Size	—
Back Focus (in air)	10.88mm
Input Power (Max. Power Consumption)	DC 8.5 ~ 16.0V (50mA)
Input Signal	VS or v signal
A.L.C.	Average-Peak
Weight	78g
Operating Temperature	-5 ~ +50°C

12FA12CST

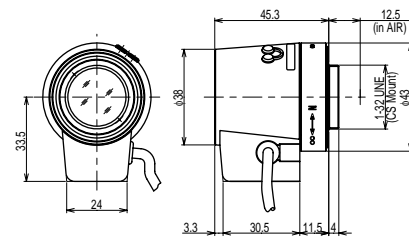


Imager Size	1/2
Mount Type	C S
Focal Length	12mm
Aperture Range	1.4 ~ 200
Angle of View (Horizontal X Vertical)	1/2 31.4° X 23.3° 1/3 23.3° X 17.3° 1/4 17.3° X 12.9°
Focusing Range	0.5m ~ ∞
Operation	Focus Manual Iris Auto Iris (Video)
Filter Size	—
Back Focus (in air)	13.47mm
Input Power (Max. Power Consumption)	DC 8.5 ~ 16.0V (50mA)
Input Signal	VS or v signal
A.L.C.	Average-Peak
Weight	79g
Operating Temperature	-5 ~ +50°C

Wiring Diagram (12FA04CST 12FA06CST 12FA12CST)

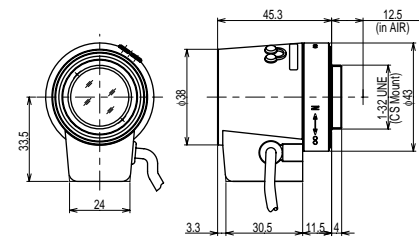


13FA28T



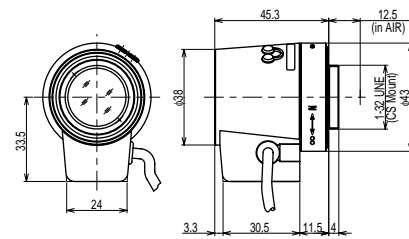
Imager Size	1/3
Mount Type	C S
Focal Length	2.8mm
Aperture Range	1.4 ~ 125
Angle of View (Horizontal X Vertical)	1/3 95.1° X 71.9° 1/4 71.8° X 54.1°
Focusing Range	0.2m ~ ∞
Operation	Focus Manual Iris Auto Iris (Video)
Filter Size	—
Back Focus (in air)	9.47mm
Input Power (Max. Power Consumption)	DC 8.5 ~ 16.0V (50mA)
Input Signal	VS or v signal
A.L.C.	Average-Peak
Weight	79g
Operating Temperature	-5 ~ +50°C

13FA04T



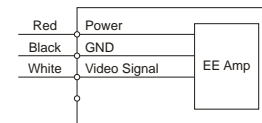
Imager Size	1/3
Mount Type	C S
Focal Length	4mm
Aperture Range	1.2 ~ 125
Angle of View (Horizontal X Vertical)	1/3 66.1° X 50.0° 1/4 49.9° X 37.6°
Focusing Range	0.2m ~ ∞
Operation	Focus Manual Iris Auto Iris (Video)
Filter Size	—
Back Focus (in air)	9.33mm
Input Power (Max. Power Consumption)	DC 8.5 ~ 16.0V (50mA)
Input Signal	VS or v signal
A.L.C.	Average-Peak
Weight	73g
Operating Temperature	-5 ~ +50°C

13FA08T



Imager Size	1/3
Mount Type	C S
Focal Length	8mm
Aperture Range	1.2 ~ 150
Angle of View (Horizontal X Vertical)	1/3 34.8° X 26.0° 1/4 25.9° X 19.4°
Focusing Range	0.3m ~ ∞
Operation	Focus Manual Iris Auto Iris (Video)
Filter Size	—
Back Focus (in air)	11.96mm
Input Power (Max. Power Consumption)	DC 8.5 ~ 16.0V (50mA)
Input Signal	VS or v signal
A.L.C.	Average-Peak
Weight	70g
Operating Temperature	-5 ~ +50°C

Wiring Diagram (13FA28T 13FA04T 13FA08T)

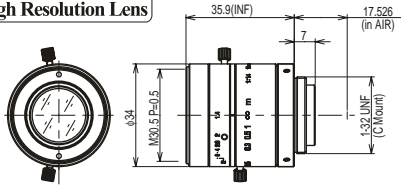


Mega-Pixel High Resolution Lenses/Super High Resolution Lens

High Resolution Lenses

23FM16SP

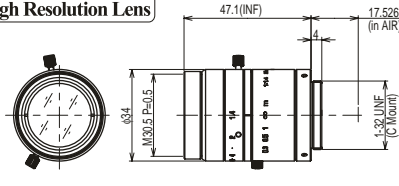
Mega-Pixel
High Resolution Lens



Imager Size	2/3	
Mount Type	C	
Focal Length	16mm	
Aperture Range	1.4 ~ 22	
Angle of View (Horizontal X Vertical)	2/3	30.9° X 23.4°
	1/2	22.7° X 17.1°
	1/3	17.1° X 12.9°
Focusing Range	0.15m ~ ∞	
Operation	Focus	Manual w/lock
	Iris	Manual w/lock
Filter Size	M30.5 P=0.5mm	
Back Focus (in air)	11.54mm	
Weight	80g	
Operating Temperature	-10 ~ +60°C	

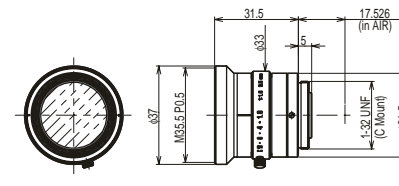
23FM25SP

Mega-Pixel
High Resolution Lens



Imager Size	2/3	
Mount Type	C	
Focal Length	25mm	
Aperture Range	1.4 ~ 22	
Angle of View (Horizontal X Vertical)	2/3	20.0° X 15.1°
	1/2	14.6° X 11.0°
	1/3	11.0° X 8.2°
Focusing Range	0.15m ~ ∞	
Operation	Focus	Manual w/lock
	Iris	Manual w/lock
Filter Size	M30.5 P=0.5mm	
Back Focus (in air)	17.17mm	
Weight	103g	
Operating Temperature	-10 ~ +60°C	

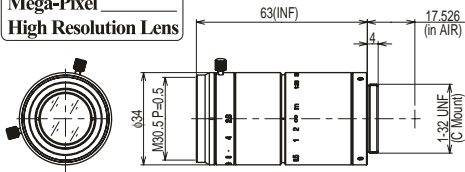
22HA



Imager Size	2/3	
Mount Type	C	
Focal Length	6.5mm	
Aperture Range	1.8 ~ Close	
Angle of View (Horizontal X Vertical)	2/3	71.6° X 55.5°
	1/2	53.9° X 41.0°
	1/3	41.0° X 31.0°
Focusing Range	0.15m ~ ∞	
Operation	Focus	-----
	Iris	Manual w/Lock
Filter Size	M35.5 P=0.5mm	
Back Focus (in air)	13.00mm	
Weight	60g	
Operating Temperature	-5 ~ +50°C	

23FM50SP

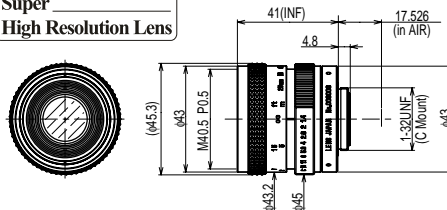
Mega-Pixel
High Resolution Lens



Imager Size	2/3	
Mount Type	C	
Focal Length	50mm	
Aperture Range	2.8 ~ 32	
Angle of View (Horizontal X Vertical)	2/3	10.1° X 7.6°
	1/2	7.3° X 5.5°
	1/3	5.5° X 4.1°
Focusing Range	0.2m ~ ∞	
Operation	Focus	Manual w/lock
	Iris	Manual w/lock
Filter Size	M30.5 P=0.5mm	
Back Focus (in air)	34.46mm	
Weight	117g	
Operating Temperature	-10 ~ +60°C	

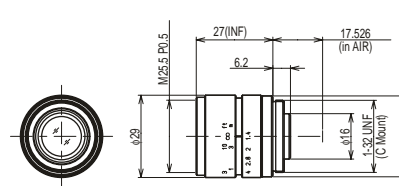
26HA

Super
High Resolution Lens



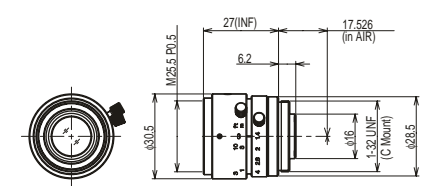
Imager Size	2/3	
Mount Type	C	
Focal Length	25mm	
Aperture Range	1.4 ~ Close	
Angle of View (Horizontal X Vertical)	2/3	19.9° X 15.0°
	1/2	14.6° X 10.9°
	1/3	10.9° X 8.2°
Focusing Range	0.6m ~ ∞	
Operation	Focus	Manual
	Iris	Manual
Filter Size	M40.5 P=0.5mm	
Back Focus (in air)	13.69mm	
Weight	145g	
Operating Temperature	-10 ~ +50°C	

219HA



Imager Size	2/3	
Mount Type	C	
Focal Length	8mm	
Aperture Range	1.4 ~ 16	
Angle of View (Horizontal X Vertical)	2/3	59.3° X 45.2°
	1/2	43.6° X 33.1°
	1/3	33.1° X 25.0°
Focusing Range	0.26m ~ ∞	
Operation	Focus	Manual
	Iris	Manual
Filter Size	M25.5 P=0.5mm	
Back Focus (in air)	11.60mm	
Weight	40g	
Operating Temperature	-10 ~ +45°C	

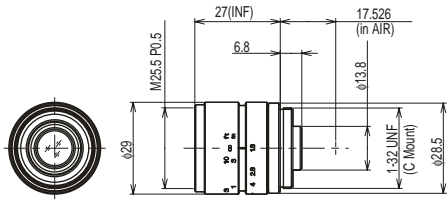
219HB



Imager Size	2/3	
Mount Type	C	
Focal Length	8mm	
Aperture Range	1.4 ~ 16	
Angle of View (Horizontal X Vertical)	2/3	59.3° X 45.2°
	1/2	43.6° X 33.1°
	1/3	33.1° X 25.0°
Focusing Range	0.26m ~ ∞	
Operation	Focus	Manual w/Lock
	Iris	Manual w/Lock
Filter Size	M25.5 P=0.5mm	
Back Focus (in air)	11.60mm	
Weight	48g	
Operating Temperature	-10 ~ +45°C	

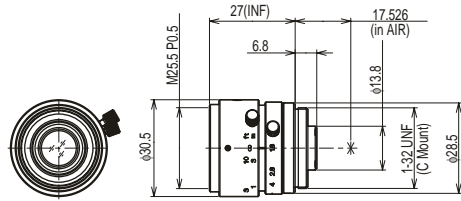
High Resolution Lenses

25HA

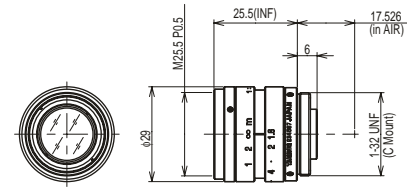


Imager Size	2/3		Imager Size	2/3	
Mount Type	C		Mount Type	C	
Focal Length	12mm		Focal Length	12mm	
Aperture Range	1.8 ~ 16		Aperture Range	1.8 ~ 16	
Angle of View (Horizontal X Vertical)	2/3	40.9° X 30.9°	Angle of View (Horizontal X Vertical)	2/3	40.9° X 30.9°
	1/2	30.0° X 22.4°		1/2	30.0° X 22.4°
	1/3	22.4° X 16.6°		1/3	22.4° X 16.6°
Focusing Range	0.26m ~ ∞		Focusing Range	0.26m ~ ∞	
Operation	Focus	Manual	Operation	Focus	Manual w/Lock
	Iris	Manual		Iris	Manual w/Lock
Filter Size	M25.5 P=0.5mm		Filter Size	M25.5 P=0.5mm	
Back Focus (in air)	11.03mm		Back Focus (in air)	11.03mm	
Weight	40g		Weight	46g	
Operating Temperature	-10 ~ +45°C		Operating Temperature	-10 ~ +45°C	

25HB

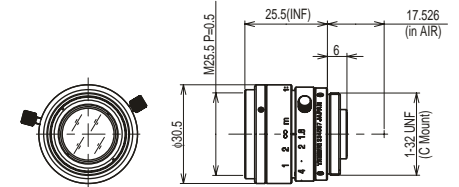


20HA

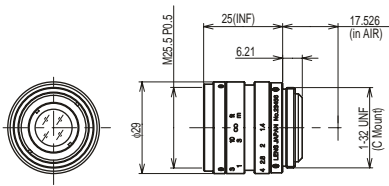


Imager Size	2/3		Imager Size	2/3	
Mount Type	C		Mount Type	C	
Focal Length	25mm		Focal Length	25mm	
Aperture Range	1.6 ~ 16		Aperture Range	1.6 ~ 16	
Angle of View (Horizontal X Vertical)	2/3	20.0° X 15.0°	Angle of View (Horizontal X Vertical)	2/3	20.0° X 15.0°
	1/2	14.6° X 11.0°		1/2	14.6° X 11.0°
	1/3	11.0° X 8.2°		1/3	11.0° X 8.2°
Focusing Range	0.21m ~ ∞		Focusing Range	0.21m ~ ∞	
Operation	Focus	Manual	Operation	Focus	Manual w/Lock
	Iris	Manual		Iris	Manual w/Lock
Filter Size	M25.5 P=0.5mm		Filter Size	M25.5 P=0.5mm	
Back Focus (in air)	11.60mm		Back Focus (in air)	11.60mm	
Weight	37g		Weight	40g	
Operating Temperature	-10 ~ +45°C		Operating Temperature	-5 ~ +50°C	

20HC

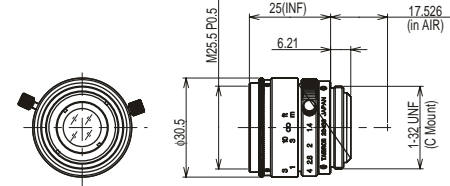


17HD

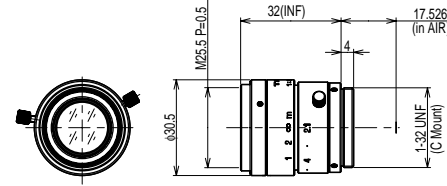


Imager Size	2/3		Imager Size	2/3	
Mount Type	C		Mount Type	C	
Focal Length	16mm		Focal Length	16mm	
Aperture Range	1.4 ~ 16		Aperture Range	1.4 ~ 16	
Angle of View (Horizontal X Vertical)	2/3	30.9° X 23.2°	Angle of View (Horizontal X Vertical)	2/3	30.9° X 23.2°
	1/2	22.5° X 16.9°		1/2	22.5° X 16.9°
	1/3	16.9° X 12.7°		1/3	16.9° X 12.7°
Focusing Range	0.29m ~ ∞		Focusing Range	0.29m ~ ∞	
Operation	Focus	Manual	Operation	Focus	Manual w/lock
	Iris	Manual		Iris	Manual w/lock
Filter Size	M25.5 P=0.5mm		Filter Size	M25.5 P=0.5mm	
Back Focus (in air)	11.85mm		Back Focus (in air)	11.85mm	
Weight	50g		Weight	48g	
Operating Temperature	-5 ~ +50°C		Operating Temperature	-5 ~ +50°C	

17HF

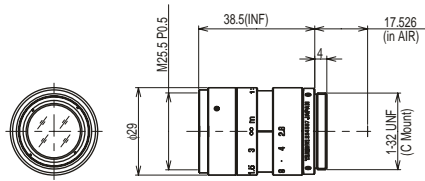


35HB



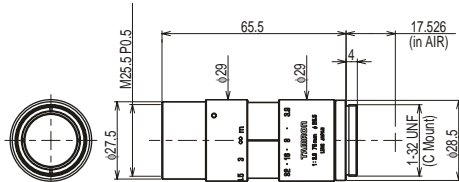
Imager Size	2/3		Imager Size	2/3	
Mount Type	C		Mount Type	C	
Focal Length	35mm		Focal Length	35mm	
Aperture Range	2.1 ~ 22		Aperture Range	2.1 ~ 22	
Angle of View (Horizontal X Vertical)	2/3	14.3° X 10.8°	Angle of View (Horizontal X Vertical)	2/3	14.3° X 10.8°
	1/2	10.4° X 7.8°		1/2	10.4° X 7.8°
	1/3	7.8° X 5.9°		1/3	7.8° X 5.9°
Focusing Range	0.3m ~ ∞		Focusing Range	0.3m ~ ∞	
Operation	Focus	Manual w/Lock	Operation	Focus	Manual w/Lock
	Iris	Manual w/Lock		Iris	Manual w/Lock
Filter Size	M25.5 P=0.5mm		Filter Size	M25.5 P=0.5mm	
Back Focus (in air)	15.53mm		Back Focus (in air)	15.53mm	
Weight	44g		Weight	44g	
Operating Temperature	-10 ~ +60°C		Operating Temperature	-10 ~ +60°C	

21HA



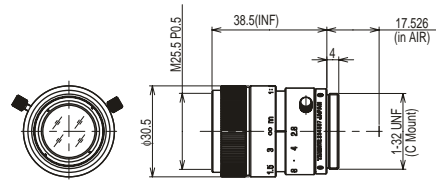
Imager Size	2/3		Imager Size	2/3	
Mount Type	C		Mount Type	C	
Focal Length	50mm		Focal Length	50mm	
Aperture Range	2.8 ~ 22		Aperture Range	2.8 ~ 22	
Angle of View (Horizontal X Vertical)	2/3	10.0° X 7.5°	Angle of View (Horizontal X Vertical)	2/3	10.0° X 7.5°
	1/2	7.3° X 5.5°		1/2	7.3° X 5.5°
	1/3	5.5° X 4.1°		1/3	5.5° X 4.1°
Focusing Range	0.44m ~ ∞		Focusing Range	0.44m ~ ∞	
Operation	Focus	Manual	Operation	Focus	Manual w/Lock
	Iris	Manual		Iris	Manual w/Lock
Filter Size	M25.5 P=0.5mm		Filter Size	M25.5 P=0.5mm	
Back Focus (in air)	22.10mm		Back Focus (in air)	22.10mm	
Weight	50g		Weight	52g	
Operating Temperature	-10 ~ +45°C		Operating Temperature	-5 ~ +50°C	

1A1HA



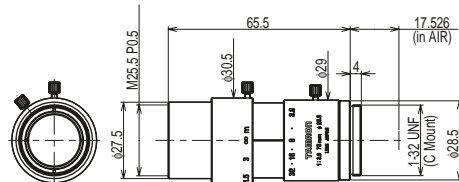
Imager Size	2/3		Imager Size	2/3	
Mount Type	C		Mount Type	C	
Focal Length	75mm		Focal Length	75mm	
Aperture Range	3.9 ~ 32		Aperture Range	3.9 ~ 32	
Angle of View (Horizontal X Vertical)	2/3	6.9° X 5.2°	Angle of View (Horizontal X Vertical)	2/3"	6.9° X 5.2°
	1/2	5.0° X 3.5°		1/2"	5.0° X 3.5°
	1/3	3.5° X 2.5°		1/3"	3.5° X 2.5°
Focusing Range	0.5m ~ ∞		Focusing Range	0.5m ~ ∞	
Operation	Focus	Manual	Operation	Focus	Manual w/Lock
	Iris	Manual		Iris	Manual w/Lock
Filter Size	M25.5 P=0.5mm		Filter Size	M25.5 P=0.5mm	
Back Focus (in air)	27.12mm		Back Focus (in air)	27.12mm	
Weight	64g		Weight	68g	
Operating Temperature	-10 ~ +70°C		Operating Temperature	-10 ~ +70°C	

21HC



Imager Size	2/3		Imager Size	2/3	
Mount Type	C		Mount Type	C	
Focal Length	50mm		Focal Length	50mm	
Aperture Range	2.8 ~ 22		Aperture Range	2.8 ~ 22	
Angle of View (Horizontal X Vertical)	2/3	10.0° X 7.5°	Angle of View (Horizontal X Vertical)	2/3	10.0° X 7.5°
	1/2	7.3° X 5.5°		1/2	7.3° X 5.5°
	1/3	5.5° X 4.1°		1/3	5.5° X 4.1°
Focusing Range	0.44m ~ ∞		Focusing Range	0.44m ~ ∞	
Operation	Focus	Manual w/Lock	Operation	Focus	Manual w/Lock
	Iris	Manual w/Lock		Iris	Manual w/Lock
Filter Size	M25.5 P=0.5mm		Filter Size	M25.5 P=0.5mm	
Back Focus (in air)	22.10mm		Back Focus (in air)	22.10mm	
Weight	52g		Weight	52g	
Operating Temperature	-5 ~ +50°C		Operating Temperature	-5 ~ +50°C	

1A1HB



Imager Size	2/3		Imager Size	2/3	
Mount Type	C		Mount Type	C	
Focal Length	75mm		Focal Length	75mm	
Aperture Range	3.9 ~ 32		Aperture Range	3.9 ~ 32	
Angle of View (Horizontal X Vertical)	2/3	6.9° X 5.2°	Angle of View (Horizontal X Vertical)	2/3"	6.9° X 5.2°
	1/2	5.0° X 3.5°		1/2"	5.0° X 3.5°
	1/3	3.5° X 2.5°		1/3"	3.5° X 2.5°
Focusing Range	0.5m ~ ∞		Focusing Range	0.5m ~ ∞	
Operation	Focus	Manual w/Lock	Operation	Focus	Manual w/Lock
	Iris	Manual w/Lock		Iris	Manual w/Lock
Filter Size	M25.5 P=0.5mm		Filter Size	M25.5 P=0.5mm	
Back Focus (in air)	27.12mm		Back Focus (in air)	27.12mm	
Weight	68g		Weight	68g	
Operating Temperature	-10 ~ +70°C		Operating Temperature	-10 ~ +70°C	

Optional Accessories for High Resolution Lenses

Extension Ring	EX-7	0.5mm, 1mm, 2mm, 5mm, 10mm, 20mm, 40mm
	UV	for Protection
Filter (φ 25.5mm)	PL	Polarizer
	R2	Red
Filter (φ 35.5mm)	PO1	Green
	80B	Blue

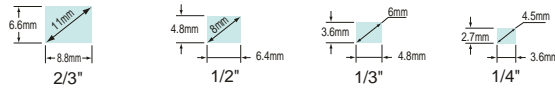
Standard Accessories

C-CS Adapter	for Adapting C-Mount Lenses to CS-Mount Cameras	
Filter (φ 30.5mm)	UV	for Protection
	PL	Polarizer

Terminology Explanation

Imager Size

Corresponds to the imager size of the CCD camera



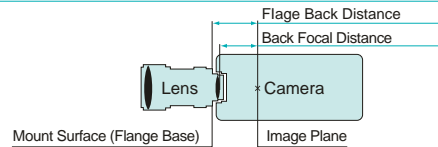
Mount Type

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

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

Flange Back Distance & Back Focal Distance

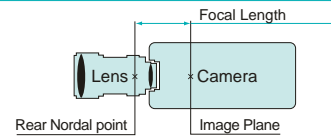
1. Flange Back Distance: Distance between the mechanical rear end of the mount surface and the image plane.
2. Back Focal Distance: Distance between the physical end of the lens element (side closest to the camera) and the image plane.



Focal Length

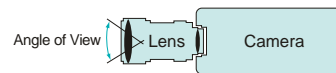
Distance between the rear nodal point and the focal point (Image Plane) on the optical axis.

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



Angle of View

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 our catalog.



Aperture Range

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:

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

*Smaller F-numbers equal faster/brighter lenses.

Focusing Range

Indicates the shooting range from the Minimum Object Distance (M.O.D.) to infinity. Generally, the range is measured from the physical end of the lens to the object.

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

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