



Quality of Light

# CCTV LENSES

2017-2018 Ver1.0



Technology

Function

Performance

Optimal Performance in Various Environments



# Kowa CCTV Lenses



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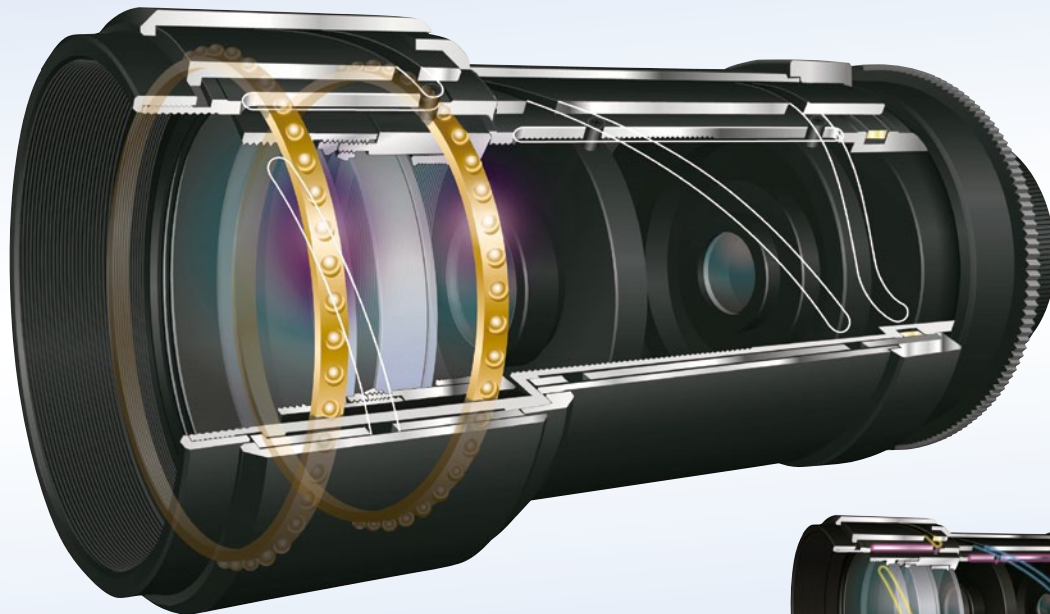
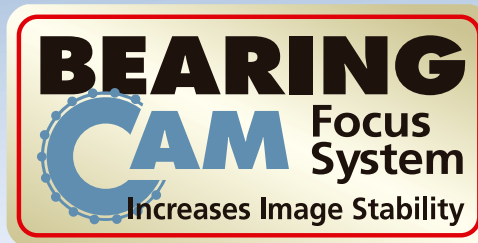


## Function Icons

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- |  |                                      |
|--|--------------------------------------|
| <b>5MEGA</b> Lens for 5 Megapixel Camera | <b>1"</b> 1 Inch Format Lens         |
| <b>2MEGA</b> Lens for 2 Megapixel Camera | <b>2/3"</b> 2/3 Inch Format Lens     |
| <b>MEGA</b> Lens for Megapixel Camera    | <b>1/1.8"</b> 1/1.8 Inch Format Lens |
| <b>C-mt</b> C-mount Lens                 | <b>1/2"</b> 1/2 Inch Format Lens     |
| <b>CS-mt</b> CS-mount Lens               | <b>1/3"</b> 1/3 Inch Format Lens     |

# Kowa Zoom Lenses



## **New Technology** **Bearing CAM Focus System**

Conventional zoom lenses commonly employ a helicoid system for the focus mechanism, which is essentially an internal screw type device that allows the user to twist the lens into focus. However, one of the main problems with a helicoid system is that environmental factors such as cold temperatures can make the focus torque too heavy for any parts to move freely without strong force.

To help prevent such problems from occurring, Kowa developed a "3-CAM" system for use in all of its varifocal and zoom lenses. Kowa's innovative 3-CAM design utilizes guide pins to minimize the contact points of all the internal mechanical parts so that they move freely with significantly less friction and torque. In other words, the result you get is a more robust lens with a longer product life since the 3-CAM system reduces wear and tear of all moving parts. The 3-CAM system also increases optical performance by solving the problem of de-centering, decreases internal reflection, and reduces the need for grease on the focus and zoom mechanisms.

In an effort to further improve on the 3-CAM technology, Kowa has designed a "Bearing CAM" focus system for the internal moving mechanisms of our zoom lenses. This new Bearing CAM focus system is especially important for long range zoom lenses because the heavy weight and large diameter of such lenses can push down on the internal moving parts. If the pressure on such lenses gets to be too much, the inside barrel can become deformed, thus changing the alignment of the optical path. Kowa's Bearing CAM focus system helps to resolve this issue because it uses dozens of ball bearings to absorb extra pressure and at the same time, allows for a smoother rotation of moving parts. What this translates to is that you get a lens with an even longer product life that is more resilient against frequent focus and zoom movement.

Kowa has released a high definition 2 megapixel 20-750mm **LMZ20750AMPDC-XF** long range zoom lens with the new Bearing CAM focus system.



# Ultra High Sensitivity HD Color Camera

## Super Bright Surveillance Camera

**0.005 Lux**  
Color  
2Megapixel Camera



**SC200PK1C**  
2/3" CMOS 2MP Color 0.005 Lux

### SPECIFICATION **SC200PK1C**

Imaging Device	2/3" CMOS
Valid Pixels	Approx 2M pixels
Pixel Size	5.0 μm
Scanning Method	Progressive
Minimum Illumination	0.005Lux (F1.4) 30fps
S/N	More than 50dB
Synchronization	Internal/External
Gain	0-72dB
Shutter Type	Rolling Shutter
Lens Mount	CS
Iris Control	DC
Day & Night	IR Cut Filter ON/OFF
Video Output	HD:HD-SDI / SD:NTSC, PAL
Output Format	1920x1080 1280 x 720 29.97 30 60 25 50
Remote Control	RS-485
Input Voltage	DC12V
Power Consumption	Lower than 7W
Size (mm)	78(W)x66(H)x146(D)
Weight (g)	600

**LMZ20750 Zoom Lens at 900m Distance  
under 0.35 Lux Light Condition**



## Suggested Megapixel Lenses for SC200PK1C

### Low light level lenses

**LM60JS5MA** 1" 5MEGA CS-mt  
1" 60mm/F0.8



<b>LM60JS5MA</b>	
Iris	DC
Focus	Manual
Focal Length(mm)	60
Iris Range(F)	0.8-360
MOD(m)	3.0
H. Angle of View(°)	1":12.8 2/3":8.8
Filter Size	M77x0.75
Size(DxHxL) (mm)	78.5 x 91.5 x 124
Weight(g)	1,000

**LM35JS5MA** 1" 5MEGA CS-mt  
1" 35mm/F0.85



<b>LM35JS5MA</b>	
Iris	DC
Focus	Manual
Focal Length(mm)	35
Iris Range(F)	0.85-360
MOD(m)	3.0
H. Angle of View(°)	1":21.6 2/3":14.9
Filter Size	M77x0.75
Size(DxHxL) (mm)	78.5 x 91.5 x 145
Weight(g)	1,200

**LM25JS5MA** 1" 5MEGA CS-mt  
1" 25mm/F0.85



<b>LM25JS5MA</b>	
Iris	DC
Focus	Manual
Focal Length(mm)	25
Iris Range(F)	0.85-360
MOD(m)	3.0
H. Angle of View(°)	1":29.0 2/3":20.0
Filter Size	M77x0.75
Size(DxHxL) (mm)	78.5 x 91.5 x 116.6
Weight(g)	800

# Auto Focus Zoom Lenses

## Auto Focus Zoom Lenses

**LMZ1236AMPDC-XFAF** 1/1.8" 2MEGA C-mt  
**30x** 1/1.8" 12-360mm/F2.6



**LMZ11176AMPDC-IRAF** 2/3" 2MEGA C-mt  
**16x** 2/3" 11-176mm/F1.6  
 Day&Night



**LMZ0824AMPDC-XFAF** 1/1.8" 2MEGA C-mt  
**30x** 1/1.8" 8-240mm/F1.7



**LMZ25300AMPDC-IRAF** 1" 5MEGA C-mt  
**12x** 1" 25-300mm/F2.8  
 Day&Night



**LMZ20750AMPDC-XFAF** 1/1.8" 2MEGA C-mt  
**37.5x** 1/1.8" 20-750mm/F4.6-F7.0(Tele)



**LMZ10360AMPDC-IRAF** 1/1.8" MEGA C-mt  
**36x** 1/1.8" 10-360mm/F1.9  
 Day&Night



**LMZ20550AMPDC-IRAF** 1/1.8" 2MEGA C-mt  
**27.5x** 1/1.8" 20-550mm/F4.6  
 Day&Night



**LMZ14500AMPDC-IRAF** 1/1.8" MEGA C-mt  
**36x** 1/1.8" 14-500mm/F2.9  
 Day&Night



**LMZ1000AMPDC-XFAF** 1/2" 2MEGA C-mt  
**50x** 1/2" 20-1000mm/F3.5-F8.9(Tele)



**LMZ16160AMPDC-IRAF** 1" 5MEGA C-mt  
**10x** 1" 16-160mm/F1.9  
 Day&Night



## External Auto Focus Box KC4AF

- For Kowa Zoom Lenses
- Corresponded 3Motor Zoom Lenses
- RS232/RS422/RS485 (Pelco-D protocol)
- Power DC12V
- Size 121mm(H)x61mm(V)x22.5mm(D)

## External Serial Signal Controller KC3s

- RS422 (Pelco-D protocol)-RS485/RS232 is also available
- Power DC12V
- Size 75mm(H)x55mm(V)x22.5mm(D)

# Long Range Megapixel Zoom Lenses

## LMZ1000-XF 50x Series

1/2" 2MEGA C-mt



1/2" 20-1000mm / F3.5



LMZ1000-XF	AMDC	AMPDC
Serial		○
Iris		DC
Zoom		Motor(P)
Focus		Motor(P)
Preset	×	○
Focal Length(mm)	20-1000	
Iris Range(F)	3.5-360	
MOD(m)	5	
H. Angle of View(°)	17.8-0.38	
Filter Size	M114x0.75	
Size(DxHxL) (mm)	139 x 130 x 450	
Weight(g)	5,470	5,500

## LMZ20750-XF 37.5x Series

1/1.8" 2MEGA C-mt



1/1.8" 20-750mm / F4.6



LMZ20750-XF	AMDC	AMPDC	M3	M3P
Serial		○		
Iris	DC			Motor(P)
Zoom		Motor(P)		
Focus		Motor(P)		
Preset	×	○	×	○
Focal Length(mm)	20-750			
Iris Range(F)	4.6-32			
MOD(m)	5			
H. Angle of View(°)	20.0-0.75			
Filter Size	M112x1.0			
Size(DxHxL) (mm)	130 x 130 x 342			
Weight(g)	3,470	3,500	3,450	3,500

## LMZ11250-XF 23x Series

2/3" 2MEGA C-mt

2/3" 11-250mm / F1.8



LMZ11250-XF	AMDC	AMPDC	M3	M3P
Serial		○		
Iris	DC			Motor(P)
Zoom		Motor(P)		
Focus		Motor(P)		
Preset	×	○	×	○
Focal Length(mm)	11-250			
Iris Range(F)	1.8-32			
MOD(m)	5			
H. Angle of View(°)	43.5-2.0			
Filter Size	M95x1.0			
Size(DxHxL) (mm)	101 x 100 x 235.5			
Weight(g)	1,970	2,000	1,950	2,000

## LMZ2EX (Exclusive 2x Extender)

Model	Focal Length	Mount	Size(mm)	Weight
LMZ 2 EX	2 times	C	φ50x7.1mm	50g

\* Corresponded for 1/2 or less C-mount lenses

# LMZ1236-XF

1/1.8" 2MEGA C-mt

## 30x Series

1/1.8" 12-360mm / F2.6



LMZ1236-XF	AMDC	AMPDC	M3	M3P
Serial			○	
Iris	DC			Motor(P)
Zoom				Motor(P)
Focus				Motor(P)
Preset	×	○	×	○
Focal Length(mm)				12-360
Iris Range(F)				2.6-32
MOD(m)				1.8
H. Angle of View(°)				29.4-1.05
Filter Size				M92x1.0
Size(DxHxL) (mm)				100 x 100 x 257
Weight(g)	1,690	1,720	1,670	1,720

# LMZ0824-XF

1/1.8" 2MEGA C-mt

## 30x Series

1/1.8" 8-240mm / F1.7



LMZ0824-XF	AMDC	AMPDC	M3	M3P
Serial			○	
Iris	DC			Motor(P)
Zoom				Motor(P)
Focus				Motor(P)
Preset	×	○	×	○
Focal Length(mm)				8-240
Iris Range(F)				1.7-32
MOD(m)				1.8
H. Angle of View(°)				43.5-1.56
Filter Size				M92x1.0
Size(DxHxL) (mm)				100 x 100 x 256
Weight(g)	1,670	1,700	1,650	1,700

# LMZ7527

1/2" 2MEGA C-mt

## 17x Series

1/2" 7.5-127mm / F1.6



LMZ7527	AMDC	AMPDC
Serial		×
Iris		DC
Zoom		Motor(P)
Focus		Motor(P)
Preset	×	○
Focal Length(mm)		7.5-127
Iris Range(F)		1.6-360
MOD(m)		1.5
H. Angle of View(°)		45.6-2.9
Filter Size		M58x0.75
Size(DxHxL) (mm)		80 x 80 x 132
Weight(g)	550	580

## Technical Data

### Wiring Diagram Auto Iris Lenses

Control System	Video Type / with AI amp.	DC Type / without AI amp.															
Input Voltage	DC8~16V (Max.40mA)	—															
Input Signal	Video Signal (V or VS)	—															
Sensitivity Adjustment	V Signal Level 0.5—1.0V p·p	—															
Input Impedance	High Impedance	—															
Iris Response Time	Approx 2 Second	—															
Metering Method	Peak-average adjustable method	—															
Operation Temperature	-10°C~+50°C	-10°C~+50°C															
Connection	<table border="1"> <thead> <tr> <th>Pin No.</th> <th>Color</th> <th>Control</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Green</td> <td>Control -</td> </tr> <tr> <td>2</td> <td>Yellow</td> <td>Control +</td> </tr> <tr> <td>3</td> <td>Red</td> <td>Drive +</td> </tr> <tr> <td>4</td> <td>Black</td> <td>Drive -</td> </tr> </tbody> </table>		Pin No.	Color	Control	1	Green	Control -	2	Yellow	Control +	3	Red	Drive +	4	Black	Drive -
Pin No.	Color	Control															
1	Green	Control -															
2	Yellow	Control +															
3	Red	Drive +															
4	Black	Drive -															



# Day & Night Megapixel Zoom Lenses

## LMZ25300-IR 1" 5MEGA C-mt 12x Series Day&Night

1" 25-300mm / F2.8



LMZ25300-IR	AMDC	AMPDC	M3	M3P
SERIAL	○			
IRIS	DC		Motor(P)	
ZOOM	Motor(P)			
FOCUS	Motor(P)			
PRESET	×	○	×	○
FOCAL LENGTH(mm)	25-300			
IRIS RANGE(F)	2.8-22			
MOD(m)	2			
H. ANGLE OF VIEW(°)	28.6-2.5			
FILTER SIZE	M86 x 1.0			
SIZE(DxHxL) (mm)	100 x 101 x 297.5			
WEIGHT(g)	1,920	1,950	1,900	1,950

## LMZ16160-IR 1" 5MEGA C-mt 10x Series Day&Night

1" 16-160mm / F1.9



LMZ16160-IR	AMDC	AMPDC	M3	M3P
SERIAL	○			
IRIS	DC		Motor(P)	
ZOOM	Motor(P)			
FOCUS	Motor(P)			
PRESET	×	○	×	○
FOCAL LENGTH(mm)	11-160			
IRIS RANGE(F)	1.9-22			
MOD(m)	1.7			
H. ANGLE OF VIEW(°)	42.7-4.6			
FILTER SIZE	M89 x 1.0			
SIZE(DxHxL) (mm)	100 x 100 x 208			
WEIGHT(g)	1,320	1,350	1,300	1,350

## LMZ11176-IR 2/3" 2MEGA C-mt 16x Series Day&Night

2/3" 11-176mm / F1.6



LMZ11176-IR	AMDC	AMPDC	M3	M3P
SERIAL	○			
IRIS	DC		Motor(P)	
ZOOM	Motor(P)			
FOCUS	Motor(P)			
PRESET	×	○	×	○
FOCAL LENGTH(mm)	11-176			
IRIS RANGE(F)	1.6-32			
MOD(m)	3			
H. ANGLE OF VIEW(°)	43.3-2.9			
FILTER SIZE	M105 x 1.0			
SIZE(DxHxL) (mm)	109 x 109 x 211.5			
WEIGHT(g)	2,820	2,850	2,800	2,850

## LMZ1177-IR 2/3" 5MEGA C-mt 7x Series Day&Night

2/3" 11-77mm / F1.6



LMZ1177-IR	AMDC	AMPDC	M3	M3P
SERIAL	○			
IRIS	DC		Motor(P)	
ZOOM	Motor(P)			
FOCUS	Motor(P)			
PRESET	×	○	×	○
FOCAL LENGTH(mm)	11-77			
IRIS RANGE(F)	1.6-22			
MOD(m)	1.5			
H. ANGLE OF VIEW(°)	43.3-6.6			
FILTER SIZE	M67 x 0.75			
SIZE(DxHxL) (mm)	80 x 80 x 120.5			
WEIGHT(g)	750	780	730	780



# LMZ10360-IR

## 36x Series

1/1.8" 2MEGA C-mt

Day & Night



1/1.8" 10-360mm / F1.9



LMZ10360-IR	AMDC	AMPDC
SERIAL		○
IRIS		DC
ZOOM		Motor(P)
FOCUS		Motor(P)
PRESET	×	○
FOCAL LENGTH(mm)		10-360
IRIS RANGE(F)		1.9-30
MOD(m)		10
H. ANGLE OF VIEW(°)		39.1-1.16
FILTER SIZE		M112 x 1.0
SIZE(DxHxL) (mm)		116 x 116 x 271
WEIGHT(g)	2,650	2,680

# LMZ14500-IR

## 36x Series

1/1.8" 2MEGA C-mt

Day & Night



1/1.8" 14-500mm / F2.9



LMZ14500-IR	AMDC	AMPDC
SERIAL		○
IRIS		DC
ZOOM		Motor(P)
FOCUS		Motor(P)
PRESET	×	○
FOCAL LENGTH(mm)		14-500
IRIS RANGE(F)		2.9-30
MOD(m)		10
H. ANGLE OF VIEW(°)		28.1-0.83
FILTER SIZE		M112 x 1.0
SIZE(DxHxL) (mm)		116 x 116 x 290.6
WEIGHT(g)	2,690	2,720

# LMZ20550-IR

## 27.5x Series

1/1.8" 2MEGA C-mt

Day & Night



1/1.8" 20-550mm / F4.6



LMZ20550-IR	AMDC	AMPDC
SERIAL		○
IRIS		DC
ZOOM		Motor(P)
FOCUS		Motor(P)
PRESET	×	○
FOCAL LENGTH(mm)		20-550
IRIS RANGE(F)		4.6-32
MOD(m)		5
H. ANGLE OF VIEW(°)		17.9-0.64
FILTER SIZE		M112 x 1.0
SIZE(DxHxL) (mm)		130 x 138 x 342
WEIGHT(g)	3,370	3,400

# LMZ0812-IR

## 15x Series

1/2" 5MEGA C-mt

Day & Night

1/2" 8-120mm / F1.8



LMZ0812-IR	AM	AMP	AMDC	AMPDC	M3	M3P
SERIAL	×			○		
IRIS		Video		DC		Motor(P)
ZOOM				Motor(P)		
FOCUS				Motor(P)		
PRESET	×	○	×	○	×	○
FOCAL LENGTH(mm)				8-120		
IRIS RANGE(F)				1.8-360		1.8-22
MOD(m)				1.5		
H. ANGLE OF VIEW(°)				43.2-3.1		
FILTER SIZE				M72x0.75		
SIZE(DxHxL) (mm)				87 x 80 x 157		
WEIGHT(g)	740	750	750	780	730	780

# High Resolution Zoom Lenses

## LMZ750-XF 25x Series

1/2" C-mt

1/2" 30-750mm / F4.6



LMZ750-XF	AM	AMP	AMDC	AMPDC	M3	M3P
SERIAL			X			
IRIS	Video		DC		Motor(P)	
ZOOM			Motor(P)			
FOCUS			Motor(P)			
PRESET	X	O	X	O	X	O
FOCAL LENGTH(mm)	30-750					
IRIS RANGE(F)	4.6-360				4.6-22	
MOD(m)	2.5					
H. ANGLE OF VIEW(°)	11.8-0.5					
FILTER SIZE	-					
SIZE(DxHxL) (mm)	122 x 122 x 313					
WEIGHT(g)	2,680	2,690	2,690	2,720	2,670	2,720

## LMZ375-XF 25x Series

1/2" C-mt

1/2" 15-375mm / F2.3



LMZ375-XF	AM	AMP	AMDC	AMPDC	M3	M3P
SERIAL			X			
IRIS	Video		DC		Motor(P)	
ZOOM			Motor(P)			
FOCUS			Motor(P)			
PRESET	X	O	X	O	X	O
FOCAL LENGTH(mm)	15-375					
IRIS RANGE(F)	2.3-360				2.3-22	
MOD(m)	2.5					
H. ANGLE OF VIEW(°)	23.2-0.99					
FILTER SIZE	-					
SIZE(DxHxL) (mm)	122 x 122 x 261					
WEIGHT(g)	2,540	2,550	2,550	2,580	2,530	2,580

## LMZ123-XF 25x Series

1/2" C-mt

1/2" 12-300mm / F1.8



LMZ123-XF	AM	AMP	AMDC	AMPDC
SERIAL			X	
IRIS	Video		DC	
ZOOM			Motor(P)	
FOCUS			Motor(P)	
PRESET	X	O	X	O
FOCAL LENGTH(mm)	12-300			
IRIS RANGE(F)	1.8-300			
MOD(m)	2.5			
H. ANGLE OF VIEW(°)	29.4-1.24			
FILTER SIZE	-			
SIZE(DxHxL) (mm)	122 x 122 x 258			
WEIGHT(g)	2,480	2,490	2,490	2,520

## LMZ112 18x Series

1/2" C-mt

1/2" 11-200mm / F1.9



LMZ112	AM	AMP	AMDC	AMPDC
SERIAL			X	
IRIS	Video		DC	
ZOOM			Motor(P)	
FOCUS			Motor(P)	
PRESET	X	O	X	O
FOCAL LENGTH(mm)	11-200			
IRIS RANGE(F)	1.9-360			
MOD(m)	1.5			
H. ANGLE OF VIEW(°)	32.1-1.9			
FILTER SIZE	M72 x 0.75			
SIZE(DxHxL) (mm)	87 x 80 x 170.5			
WEIGHT(g)	715	725	725	755

## LMZ300 30x Series

1/3" CS-mt

1/3" 5.5-165mm / F1.8



LMZ300	AM	AMP	AMDC	AMPDC
SERIAL			X	
IRIS	Video		DC	
ZOOM			Motor(P)	
FOCUS			Motor(P)	
PRESET	X	O	X	O
FOCAL LENGTH(mm)	5.5-165			
IRIS RANGE(F)	1.8-360			
MOD(m)	1.8			
H. ANGLE OF VIEW(°)	47.6-1.7			
FILTER SIZE	M72 x 0.75			
SIZE(DxHxL) (mm)	87 x 80 x 167			
WEIGHT(g)	840	850	850	880

## LMZ200 20x Series

1/3" CS-mt

1/3" 5.6-112mm / F1.6



LMZ200	AM	AMP	AMDC	AMPDC
SERIAL			X	
IRIS	Video		DC	
ZOOM			Motor(P)	
FOCUS			Motor(P)	
PRESET	X	O	X	O
FOCAL LENGTH(mm)	5.6-112			
IRIS RANGE(F)	1.6-360			
MOD(m)	1.5			
H. ANGLE OF VIEW(°)	47.6-2.6			
FILTER SIZE	M55 x 0.75			
SIZE(DxHxL) (mm)	69 x 79 x 119.5			
WEIGHT(g)	530	540	540	570

## LMZ110 15x Series

1/3" CS-mt

1/3" 6-90mm / F1.6



LMZ110	AMDC	AMPDC	M3	M3P
SERIAL			X	
IRIS	DC		Motor(P)	
ZOOM			Motor(P)	
FOCUS			Motor(P)	
PRESET	X	O	X	O
FOCAL LENGTH(mm)	6-90			
IRIS RANGE(F)	1.6-360		1.6-22	
MOD(m)	1.2			
H. ANGLE OF VIEW(°)	44.2-3.1			
FILTER SIZE	-			
SIZE(DxHxL) (mm)	69 x 79 x 116.5			
WEIGHT(g)	520	550	500	550

## LMZ111 10x Series

1/3" CS-mt

1/3" 6-60mm / F1.6



LMZ111	AMDC	AMPDC	M3	M3P
SERIAL			X	
IRIS	DC		Motor(P)	
ZOOM			Motor(P)	
FOCUS			Motor(P)	
PRESET	X	O	X	O
FOCAL LENGTH(mm)	6-60			
IRIS RANGE(F)	1.6-360		1.6-22	
MOD(m)	1.2			
H. ANGLE OF VIEW(°)	32.1-1.9			
FILTER SIZE	M55 x 0.75			
SIZE(DxHxL) (mm)	69 x 79 x 116.5			
WEIGHT(g)	520	550	500	550

## External DC/Video Iris Converter KP933SP

KP933SP to drive DC-Iris lens with Video-Iris Camera

Size 16.4mm x 33.6mm x 11.9mm, Approx. 20g



# Fixed Focal Day & Night Megapixel Lenses

## 5Megapixel P-Iris Day & Night Fixed Focal Lenses

2/3" 5MEGA C-mt Day & Night



### LM16JC5M 2/3" 16mm / F1.4

### LM25JC5M 2/3" 25mm / F1.4

### LM35JC5M 2/3" 35mm / F2.0

	LM16JC5M			LM25JC5M			LM35JC5M		
	A-IR	M-IR	-IR	A-IR	M-IR	-IR	A-IR	M-IR	-IR
IRIS	DC	P	Manual	DC	P	Manual	DC	P	Manual
FOCAL LENGTH(mm)	16			25			35		
IRIS RANGE(F)	1.4-360	1.4-38	1.4-16	1.4-360	1.4-38	1.4-16	2.0-360	2.0-40	2.0-22
MOD(m)	0.5			0.3			0.5		
H. ANGLE OF VIEW(°)	30.9			20.1			13.9		
FILTER SIZE	M30.5 x 0.5			M30.5 x 0.5			M35.5 x 0.5		
SIZE(DxHxL) (mm)	37 x 44 x 55.4			37 x 44 x 57.6			37 x 44 x 52.8		
WEIGHT(g)	100			110			100		

## 5Megapixel NIR / Day & Night Fixed Focal Lenses

1" 5MEGA C-mt Day & Night

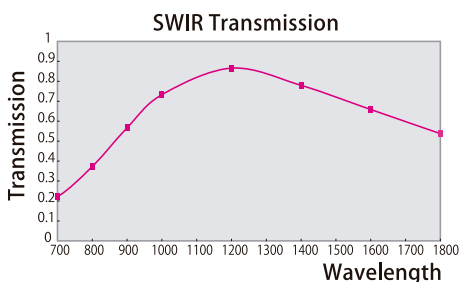


### LM50HC-IR 1" 50mm / F1.8

### LM60HC-IR 1" 60mm / F1.8

	LM50HC-IR	LM60HC-IR
IRIS	Manual	
FOCAL LENGTH(mm)	50	60
IRIS RANGE(F)	1.8-16	2.0-16
MOD(m)	1.0-∞	1.0-∞
H. ANGLE OF VIEW(°)	14.4	12.2
DISTORTION	-0.09	-0.06
SIZE(DxHxL) (mm)	φ50.0 x 47.4	φ49.2 x 54.6
WEIGHT(g)	100	200

## SWIR Zoom Lenses



### LMZ25300-SW 12x Series 1" 25-300mm / F2.8

### LMZ16160-SW 10x Series 1" 16-160mm / F1.9

### LMZ20750-SW 37.5x Series 1/1.8" 20-750mm / F4.6-F7.0(Tele)



Model	Image Size	Focal Length (mm)	Iris Range (F)	MOD. (m)	Mount	H.Angle of View (°)	Operation			Mega	IR Correct	Filter Size	Size(DxHxL) (mm)	Weight (g)
							Iris	Zoom	Focus					
LMZ25300M3P-SW	1"	25-300	2.8-32	2	C	28.6-2.5	Motor(P)	Motor(P)	Motor(P)	-	-	M86x1.0	100x100x297.5	1,950
LMZ16160M3P-SW	1"	16-160	1.9-22	1.7	C	42.7-4.6	Motor(P)	Motor(P)	Motor(P)	-	-	M89x1.0	100x100x208	1,350
LMZ20750M3P-SW	1/1.8"	20-750	4.6-32	5	C	17.8-0.5	Motor(P)	Motor(P)	Motor(P)	-	-	M112x1.0	130x130x342	3,500



# Other Varifocal and Fixed Focal Lenses

\*(1) Available while stocks last

Model	Image Size	Focal Length (mm)	Iris Range (F)	M.O.D. (m)	Mount	H.Angle of View (°)	Operation			Mega	IR Correct	Filter Size	Size(DxHxL) (mm)	Weight (g)
							Iris	Zoom	Focus					

## Day & Night Varifocal Lenses

LMVZ990-IR	1/2"	9.0-90 (10x)	1.8—16	0.3	C	41.1—4.2	Manual	Manual	Manual	—	○	M43x0.75	φ45x93	194
LMVZ990A-IR	1/2"	9.0-90 (10x)	1.8—360	0.3	C	41.1—4.2	DC	Manual	Manual	—	○	M43x0.75	45x53.5x93	194
LMVZ3109A-IR	1/2.7"	3.1-9(2.9x)	1.3—360	0.5	CS	99.4—34.8	DC	Manual	Manual	3MP	○	-	36.5x47.1x52.1	70
LMVZ7550A-IR	1/2.7"	7.5-50(2x)	1.5—360	0.5	CS	38.0—6.2	DC	Manual	Manual	3MP	○	-	47.5x53.6x68.4	TBA

## Megapixel Varifocal Lenses

LMVZ4411	1/1.8"	4.4-11 (2.5x)	1.6—16	0.5	C	76.6—36.7	Manual	Manual	Manual	2MP	—	M43x0.75	φ45x56.5	125
LMVZ166HC	1"	16-64 (4x)	1.8—16	0.5	C	45.9—11.7	Manual	Manual	Manual	2MP	—	M58x0.75	φ60x124	370

## High Resolution Varifocal Lenses

LMVZ164	*(1)	1/3"	1.6-3.4 (2.1x)	1.4—C	0.2	CS	180.0—84.3	Manual	Manual	Manual	—	—	—	φ42x52.1	98
LMVZ164A	*(1)	1/3"	1.6-3.4 (2.1x)	1.4—360	0.2	CS	180.0—84.3	DC	Manual	Manual	—	—	—	39.5x45.8x52.1	105
LMVZ256	*(1)	1/3"	2.5-6.0 (2.4x)	1.4—C	0.2	CS	107.6—45.6	Manual	Manual	Manual	—	—	—	φ42x47.4	83
LMVZ256A	*(1)	1/3"	2.5-6.0 (2.4x)	1.4—360	0.2	CS	107.6—45.6	DC	Manual	Manual	—	—	—	39.5x45.8x47.6	90
LMVZ510A	*(1)	1/3"	5-100 (20x)	1.6—360	0.3	CS	52.7—2.8	DC	Manual	Manual	—	—	M46x0.75	48x55x93	190

## Fixed Focal Lenses

LM2.3PB	*(1)	1/3"	2.3	1.4—360	0.2	CS	116.1	DC	—	Manual	—	—	—	39.2x48.6x41	80
LM3PB	*(1)	1/3"	2.8	1.4—360	0.2	CS	97.4	DC	—	Manual	—	—	M35.5x0.5	39.2x48.6x39	69
LM4NCR		1/2"	3.5	1.4—C	0.2	C	103.6	Manual	—	Manual	—	—	—	φ35x31	56
LM5NCR		1/2"	4.5	1.4—C	0.2	C	79.0	Manual	—	Manual	—	—	M30.5x0.5	φ35x32	54
LM6NCR		1/2"	6	1.4—C	0.2	C	57.3	Manual	—	Manual	—	—	M30.5x0.5	φ35x39.5	72
LM12NCR		1/2"	12	1.4—C	0.3	C	30.7	Manual	—	Manual	—	—	M30.5x0.5	φ35x30	53
LM25JCR	*(1)	2/3"	25	1.6—C	0.5	C	21.1	Manual	—	Manual	—	—	M30.5x0.5	φ35x26	54

# FA Industrial Lenses

Model	Image Size	Focal Length (mm)	Iris Range (F)	M.O.D. (m)	Mount	H.Angle of View (°)	Operation			Filter Size	Size(DxHxL) (mm)	Weight (g)
							Iris	Zoom	Focus			

## 8Megapixel Fixed Focal

LM8XC	4/3"	8.5	2.8—22	0.1	C	93.5	Manual	—	Manual	M72x0.75	φ74x82.5	245
LM12XC	4/3"	12	2.0—22	0.1	C	74.9	Manual	—	Manual	M55x0.75	φ57x85	270
LM16XC	4/3"	16	2.0—22	0.1	C	60.6	Manual	—	Manual	M40.5x0.5	φ45x79.5	250
LM25XC	4/3"	25	2.0—16	0.15	C	40.9	Manual	—	Manual	M40.5x0.5	φ45x89	250
LM35XC	4/3"	35	2.0—16	0.2	C	29.6	Manual	—	Manual	M37.5x0.5	φ45x74	210
LM50XC	4/3"	50	2.0—22	0.3	C	20.6	Manual	—	Manual	M37.5x0.5	φ45x74	220

## 6Megapixel Fixed Focal

LM12SC	1"	12	1.8—16	0.1	C	55.9	Manual	—	Manual	M40.5x0.5	φ43x84.0	255
LM16SC	1"	16	1.8—22	0.1	C	44.0	Manual	—	Manual	M34x0.5	φ43x80.0	240
LM25SC	1"	25	1.8—16	0.15	C	28.9	Manual	—	Manual	M34x0.5	φ43x89.0	245
LM35SC	1"	35	2.0—16	0.2	C	20.8	Manual	—	Manual	M34x0.5	φ43x74.0	200
LM50SC	1"	50	2.0—22	0.3	C	14.6	Manual	—	Manual	M34x0.5	φ43x78.5	210

## 4Megapixel Fixed Focal

LM6HC	1"	6	1.4—16	0.1	C	96.8	Manual	—	Manual	—	φ54x56.2	215
LM8HC	1"	8	1.4—16	0.1	C	79.7	Manual	—	Manual	M55x0.75	φ57x58	200
LM12HC	1"	12.5	1.4—16	0.3	C	55.6	Manual	—	Manual	M35x0.5	φ42x52	150
LM16HC	1"	16	1.4—16	0.3	C	44.3	Manual	—	Manual	M35.5x0.5	φ42x52.9	140
LM25HC	1"	25	1.4—16	0.3	C	29.3	Manual	—	Manual	M35.5x0.5	φ42x43	125
LM35HC	1"	35	1.4—16	0.3	C	20.9	Manual	—	Manual	M35.5x0.5	φ42x43	130
LM50HC	1"	50	1.4—16	0.5	C	14.5	Manual	—	Manual	M40.5x0.5	φ47.5x48	200
LM75HC	1"	75	1.8—16	1	C	9.7	Manual	—	Manual	M46x0.75	φ48x57	180

## Megapixel SWIR Fixed Focal

LM8HC-SW	1"	8	1.4—16	0.1	C	79.7	Manual	—	Manual	M55x0.75	φ57 x 58	200
LM12HC-SW	1"	12.5	1.4—16	0.3	C	55.6	Manual	—	Manual	M27x0.5	φ43 x 52	150
LM16HC-SW	1"	16	1.4—16	0.3	C	44.3	Manual	—	Manual	M35.5x0.5	φ43 x 52.9	140
LM25HC-SW	1"	25	1.4—16	0.3	C	29.3	Manual	—	Manual	M35.5x0.5	φ43 x 43	125
LM35HC-SW	1"	35	1.4—16	0.3	C	20.9	Manual	—	Manual	M35.5x0.5	φ43 x 43	130
LM50HC-SW	1"	50	1.4—16	0.5	C	14.5	Manual	—	Manual	M40.5x0.5	φ49 x 48	200

# FA Industrial Lenses

Model	Image Size	Focal Length (mm)	Iris Range (F)	M.O.D. (m)	Mount	H.Angle of View (°)	Operation			Filter Size	Size(DxHxL) (mm)	Weight (g)
							Iris	Zoom	Focus			

## 10Megapixel Fixed Focal

LM5JC10M	2/3"	5	1.8—16	0.1	C	82.2	Manual	—	Manual	M46x0.75	φ48x57.1	120
LM8JC10M	2/3"	8.5	1.8—22	0.1	C	54	Manual	—	Manual	M34x0.5	φ36x56	115
LM12JC10M	2/3"	12	1.8—11	0.1	C	39.1	Manual	—	Manual	M25.5x0.5	φ33x52.5	105
LM16JC10M	2/3"	16	1.8—16	0.1	C	30	Manual	—	Manual	M25.5x0.5	φ33x47.5	90
LM25JC10M	2/3"	25	1.8—16	0.1	C	20	Manual	—	Manual	M25.5x0.5	φ33x45.5	95
LM35JC10M	2/3"	35	2.0—16	0.1	C	14.3	Manual	—	Manual	M34x0.5	φ43x49	160
LM50JC10M	2/3"	50	2.8—16	0.1	C	10.1	Manual	—	Manual	M30.5x0.5	φ38x77	170

## 5Megapixel Fixed Focal

LM12JC5M2	2/3"	12	1.4—16	0.1	C	38.4	Manual	—	Manual	M30.5x0.5	φ38.5x61.7	160
LM16JC5M2	2/3"	16	1.4—16	0.1	C	29.9	Manual	—	Manual	M30.5x0.5	φ38.5x63.3	160
LM25JC5M2	2/3"	25	1.4—16	0.1	C	19.9	Manual	—	Manual	M30.5x0.5	φ38.5x59.9	140
LM35JC5M2	2/3"	35	1.6—16	0.18	C	14.3	Manual	—	Manual	M35.5x0.5	φ38.5x63.6	150

## 3Megapixel Fixed Focal

LM8JC3M2	2/3"	8	1.4—C	0.1	C	56.5	Manual	—	Manual	M27x0.5	φ34x41.6	90
LM12JC3M2	2/3"	12	1.4—C	0.15	C	38.3	Manual	—	Manual	M27x0.5	φ34x37	85
LM16JC3M2	2/3"	16	1.4—16	0.2	C	30.0	Manual	—	Manual	M27x0.5	φ33.5x36.5	85
LM25JC3M2	2/3"	25	1.4—16	0.2	C	19.6	Manual	—	Manual	M27x0.5	φ33.5x39.5	90
LM35JC3M2	2/3"	35	2.0—16	0.2	C	14.4	Manual	—	Manual	M27x0.5	φ34x36.5	70
LM50JC3M2	2/3"	50	2.8—22	0.2	C	9.6	Manual	—	Manual	M27x0.5	φ34x55	95

## Megapixel Fixed Focal

LM3NCM	1/2"	3.5	2.4—14	0.1	C	82.4	Manual	—	Manual	M40.5x0.5	φ42x38.2	75
LM4NCM	1/2"	4.4	1.6—16	0.1	C	70.2	Manual	—	Manual	M43xP0.75	φ45x57.3	150
LM6NCM	1/2"	6	1.2—16	0.1	C	56.2	Manual	—	Manual	M30.5x0.5	φ32x45.8	88
LM5JCM	2/3"	5	2.8—16	0.15	C	82.4	Manual	—	Manual	M40.5x0.5	φ42x38.2	85
LM8JCM	2/3"	8	1.4—C	0.12	C	56.5	Manual	—	Manual	M27x0.5	φ34x41.6	83
LM12JCM	2/3"	12	1.4—C	0.15	C	38.3	Manual	—	Manual	M27x0.5	φ34x37	75
LM16JCM	2/3"	16	1.4—16	0.2	C	30.0	Manual	—	Manual	M25.5x0.5	φ33x36.5	81
LM25JCM	2/3"	25	1.4—16	0.2	C	19.6	Manual	—	Manual	M27x0.5	φ33x39.5	89
LM35JCM	2/3"	35	2.0—16	0.2	C	14.4	Manual	—	Manual	M27x0.5	φ34x36.5	92
LM50JCM	2/3"	50	2.8—22	0.2	C	9.6	Manual	—	Manual	M27x0.5	φ34x55	92

## Large Format NIR

LM50-IR	φ43.3	50	1.9—16	0.5	F	40.2x27.2	Manual	—	Manual	M52xP0.75	φ58.5x105.2	605
LM65-IR	φ43.3	65	1.9—16	0.7	F	30.7x23.4	Manual	—	Manual	M67xP0.75	φ69x105.1	650

## Line Scan

LM28CLS (3CCD)	φ30	28	2.8—22	0.5	F	—	Manual	—	Manual	M72x0.75	φ75 x 108	482
LM35CLS (3CCD)	φ30	35	2.8—22	0.5	F	—	Manual	—	Manual	M62x0.75	φ65 x 108	480
LM50CLS (3CCD)	φ30	50	2.8—22	0.3	F	—	Manual	—	Manual	M52x0.75	φ58 x 71.4	358
LM28LF	φ43.3	28	2.8—16	0.3	F	—	Manual	—	Manual	M72x0.75	φ75 x 98	500
LM35LF	φ43.3	35	2.8—16	0.26	F	—	Manual	—	Manual	M52x0.75	φ54 x 71	420
LM50LF	φ43.3	50	2.8—16	0.26	F	—	Manual	—	Manual	M52x0.75	φ54 x 77	460

## NF-Mount

LM3NF	1/3"	2.7	1.8—16	0.1	NF	100.8	Manual	—	Manual	—	φ21 x 27	26
LM5NF	1/3"	4.5	1.8—11	0.1	NF	59.2	Manual	—	Manual	—	φ21 x 31	35
LM9NF	1/3"	9	1.8—11	0.1	NF	30.2	Manual	—	Manual	—	φ21 x 34	40

# FA Industrial Lenses

Model	Image Size	Focal Length (mm)	Iris Range (F)	M.O.D. (m)	Mount	H.Angle of View (°)	Operation			Filter Size	Size(DxHxL) (mm)	Weight (g)
							Iris	Zoom	Focus			

## High Resolution Fixed Focal

LM6JC	2/3"	6	1.4-16	0.1	C	81.9	Manual	—	Manual	—	φ30 x 32.8	63
LM8JC	2/3"	8	1.4-16	0.15	C	64.2	Manual	—	Manual	M27x0.5	φ30 x 30	60
LM12JC	2/3"	12	1.4-16	0.1	C	42.5	Manual	—	Manual	M27x0.5	φ30 x 31.5	63
LM16JC	2/3"	16	1.4-16	0.12	C	30.5	Manual	—	Manual	M27x0.5	φ30 x 28	55
LM25JC	2/3"	25	1.6-16	0.15	C	21.0	Manual	—	Manual	M27x0.5	φ30 x 28.5	58
LM35JC	2/3"	35	1.6-16	0.2	C	14.4	Manual	—	Manual	M30x0.5	φ32 x 36.5	85
LM50JC	2/3"	50	2.0-22	0.2	C	10.1	Manual	—	Manual	M30x0.5	φ32 x 39.5	88
LM75JC	2/3"	75	2.5-22	0.2	C	6.7	Manual	—	Manual	M34x0.5	φ36 x 51	105
LM100JC	2/3"	100	2.8-32	0.2	C	5.0	Manual	—	Manual	M48.5x0.5	φ40.5 x 70	150
LM4NCL	1/2"	3.5	1.4-16	0.2	C	103.6	Manual	—	Manual	—	φ31 x 30.5	73
LM5NCL	1/2"	4.5	1.4-16	0.2	C	79.0	Manual	—	Manual	—	φ31 x 29.5	71
LM6NCL	1/2"	6	1.4-16	0.2	C	57.3	Manual	—	Manual	M25.5x0.5	φ31 x 34	60
LM12NCL	1/2"	12	1.4-16	0.3	C	30.7	Manual	—	Manual	M25.5x0.5	φ31 x 29.5	70

## Macro Zoom

LMZ50M	1/3"	8.5-90	2.5-C	0.15	C	31.3-3.2	Manual	Manual	Manual	M48x0.75	φ60 x 130	437
LMZ68M	1/2"	8-48	1.0-C	0.01	C	43.6-7.7	Manual	Manual	Manual	M46x0.75	φ48 x 97.3	280
LMZ69M	2/3"	11.5-69	1.4-C	0.01	C	41.9-7.3	Manual	Manual	Manual	M46x0.75	φ48 x 102.7	300
LMZ45T3	2/3"	18-108	2.5-C	0.13	C	27.3-4.7	Manual	Manual	Manual	M52x0.75	φ62 x 171.7	595

## Ruggedized Megapixel (JCM-V)

LM8JCM-V	2/3"	8	1.4 / 4 / 8 / 16	0.1	C	56.5	Manual	—	Manual	M27x0.5	φ33 x 41.6	88
LM12JCM-V	2/3"	12	1.4 / 4 / 8 / 16	0.15	C	38.3	Manual	—	Manual	M27x0.5	φ33 x 37.0	75
LM16JCM-V	2/3"	16	1.4 / 4 / 8 / 16	0.2	C	30.0	Manual	—	Manual	M27x0.5	φ33 x 36.5	77
LM25JCM-V	2/3"	25	1.4 / 4 / 8 / 16	0.2	C	19.6	Manual	—	Manual	M27x0.5	φ33 x 39.5	83
LM35JCM-V	2/3"	35	2 / 4 / 8 / 16	0.2	C	14.4	Manual	—	Manual	M27x0.5	φ33 x 37.8	73
LM50JCM-V	2/3"	50	2.8 / 4 / 8 / 16	0.2	C	9.6	Manual	—	Manual	M27x0.5	φ33 x 56.2	85

## Ruggedized Megapixel (HC-V)

LM8HC-V	1"	8	1.4 / 2.8 / 4 / 8	0.1	C	79.4	Manual	—	Manual	M55x0.75	φ58 x 58	183
LM12HC-V	1"	12.5	1.4 / 2.8 / 4 / 8	0.3	C	55.6	Manual	—	Manual	M35.5x0.5	φ43 x 51.5	130
LM16HC-V	1"	16	1.4 / 2.8 / 4 / 8	0.3	C	44.3	Manual	—	Manual	M35.5x0.5	φ43 x 53	120
LM25HC-V	1"	25	1.4 / 2.8 / 4 / 8	0.3	C	29.3	Manual	—	Manual	M35.5x0.5	φ43 x 43	104
LM35HC-V	1"	35	1.4 / 2.8 / 4 / 8	0.3	C	20.9	Manual	—	Manual	M35.5x0.5	φ43 x 44.1	133
LM50HC-V	1"	50	1.4 / 2.8 / 4 / 8	0.5	C	14.5	Manual	—	Manual	M40.5x0.5	φ43 x 48	170

# Telecentric Lenses

Model	Magnification	Image Size	Shooting Magnification	Objective N.A	W.D (mm)	Shooting Range(mm)	TV Distortion (%)	Back Focus in Air(mm)	Mount	Resolution	Size (mm)	Weight (g)
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## 2/3" Telecentric Macro Zoom

LM50TC	0.3-1.0x	8.8x6.6 (φ11)	0.3x 1.0x	0.038 0.100	193.4 81.8	29.5x22.2 (2/3") 8.8x6.6 (2/3")	-0.19 -0.1	22.0	C	120 lp/mm	φ56 x 115.7	317
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## 4/3" Telecentric Macro Zoom

LM11138TC	2.0x	13.8x18.4 (φ23)	2.0x	0.2	80.6	9.20x6.90(4/3")	0.1	14.7	C	120 lp/mm	φ64 x 151.0	—
LM1119TC	0.5-1.0x	18.4x13.8 (φ23)	0.5x 1.0x	0.05 0.1	80 81.8	36.8x27.7 (4/3") 18.4x13.8 (4/3")	0.1 0.1	14.7	C	120 lp/mm	φ82 x 151.5	1000

## 2/3" Telecentric 5 Megapixel Plus Series

LM1120TC	3.45-4.4x	8.8x6.6 (φ11)	3.45x	0.2	65.9	1.9x2.6(2/3")	0.015	17.1	C	120 lp/mm	φ57 x 180	645
			4.0x	0.2	65.9	1.7x2.2(2/3")	0.003	24.5				
			4.4x	0.2	65.9	1.5x2.0(2/3")	-0.002	30				
LM1121TC	1.725-2.2x	8.8x6.6 (φ11)	1.725x	0.131	114.8	5.1x3.8 (2/3")	0.011	55.8	C	120 lp/mm	φ48 x 147.5	420
			2.0x	0.131	111.4	4.4x3.3 (2/3")	0.004	67.7				
			2.2x	0.131	109.4	4.0x3.0 (2/3")	0.001	76.3				
LM1122TC	1.15-1.47x	8.8x6.6 (φ11)	1.15x	0.101	111.6	7.6x5.7 (2/3")	-0.015	18.7	C	120 lp/mm	φ50 x 123.9	330
			1.3x	0.101	111.6	6.6x5.0 (2/3")	-0.001	23.6				
			1.47x	0.101	111.6	6.5x4.5 (2/3")	0.011	29.8				
LM1123TC	0.69-0.88x	8.8x6.6 (φ11)	0.69x	0.07	111.0	12.7x9.6 (2/3")	-0.001	34	C	120 lp/mm	φ50 x 121.5	290
			0.8x	0.07	111.0	11.0x8.2 (2/3")	-0.009	28.8				
			0.88x	0.07	111.0	10.0x7.5 (2/3")	0.005	25.3				
LM1125TC	0.346-0.44x	8.8x6.6 (φ11)	0.346x	0.04	112.7	19.1x25.4(2/3")	0.02	17.6	C	120 lp/mm	φ51.5x142.3	395
			0.4x	0.04	112.7	16.5x22.0(2/3")	-0.009	17				
			0.44x	0.04	112.7	15.0x20.0(2/3")	0.01	16.5				

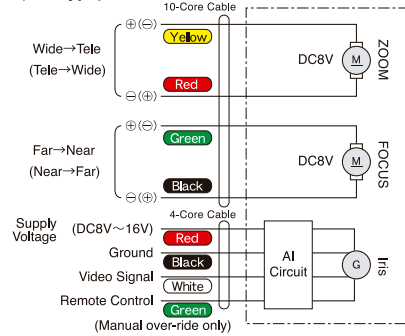


## Wiring Diagram for Motorized Zoom Auto Iris Lenses

N.B.

The following are wiring diagrams of our standard models. For other detailed information, see the instruction manual in individual box.

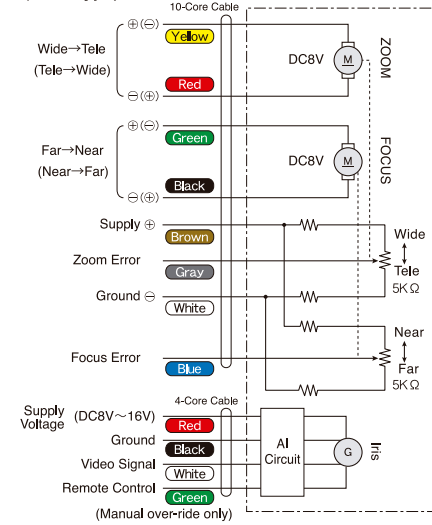
### Auto iris with Motorized Zoom, Focus (AM Type)



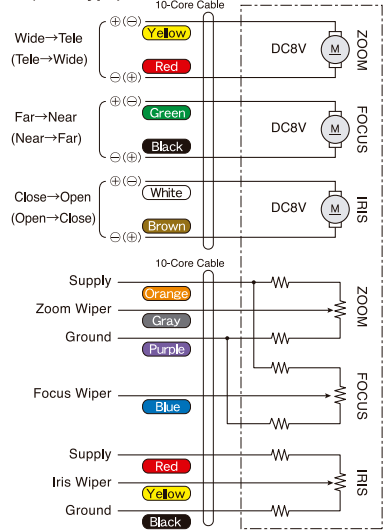
#### Zoom/Focus Motor Electrical Information

	Z/F	Z/F	Z/F	Z/F
Input Voltage	DC6V-12V	DC6V-12V	DC6V-12V	DC6V-12V
Current Consumption	Max 60mA	Max 60mA	Max 60mA	Max 60mA
Speed (at DC8V)	approx 7sec	approx 10sec	approx 14sec	approx 11/28sec
Model No	LMZ111	LMZ112	LMZ123	LMZ1000
	LMZ110	LMZ300	LMZ0824	LMZ20750
	LMZ200	LMVZ161604R	LMZ1236	LMZ750
	LMZ7527	LMZ0812-IR		LMZ375
	LMZ1177-IR	LMZ25300-IR		LMZ20550-IR

### AI, Motorized Zoom with Preset on Zoom, Focus (AMP Type)



### Motorized Zoom 3 Motor Type (M3P Type)



## Selection Guide for CCTV Lenses

### 1. Angle of View and Field of View

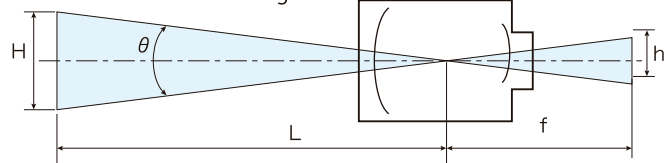
(A) The angle of view can be obtained by following formula.

$$\theta = 2 \tan^{-1} h/2f$$

(B) The Field of View can be obtained by following formula.

$$H = h L/f$$

$\theta$  : Angle of View  
 $h$  : Image Size  
 $f$  : Focal Length  
 $H$  : Field of View  
 $L$  : Object Distance



### 2. F-Number

The F-number is an index of the amount of light that passes through a lens. The smaller the number, the greater the amount of light.

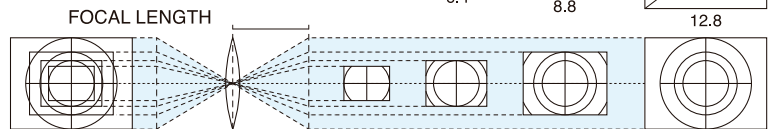
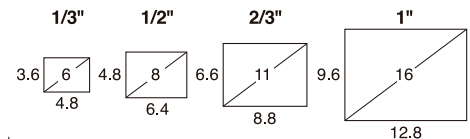
The relationship between the F-Number, focal length, and effective diameter can be calculated by the following formula.  $F\text{-number} = f/A$  Where  $f$ =focal length, and  $A$ =effective diameter

### 3. Image Format Size (unit:mm)

○ Image sensor sizes are in a ratio of 1 : 0.69 : 0.5 : 0.38 i.e. 1/2" format is 50% of 1" format, 1/2" format is 75% of 2/3" format, 1/3" format is 75% of 1/2" format.

○ Even when the same lens is used, angles of view vary in terms of ratio between image sensor sizes. The smaller the format, the narrower the angle of view for any given lens.

○ When using a 1/2" lens for a 1/3" camera, the correlation list the right may help to select a 1/2" lens with an angle of view similar to that of a 1/3" lens.



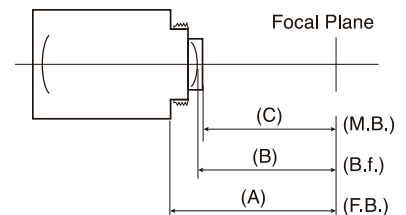
Focal length of 1/2" lens	Focal length of 1/3" lens
$f=4\text{mm}$	$f=3\text{mm}(2.8\text{mm})$
$f=6\text{mm}$	$f=4.5\text{mm}$
$f=12\text{mm}$	$f=9\text{mm}(8\text{mm})$

### 4. Flange Back & Back Focal Length

(A) Flange Back. The distance from a basic plane of a mount to a Focal Plane. The Flange Back of each mount is standardized as follows: C mount : 17.526mm CS mount : 12.5mm

(B) Back Focal Length. The distance from a center of a rear lens to a Focal Plane. When a lens is attached to a camera, the back focal length may be a standard to judge whether an end of rear lens hits any mechanical parts inside a camera.

(C) Mechanical Back Focal Length. The distance from any closest parts of a lens to a Focal Plane. When a lens is attached to a camera, the Mechanical Back Focal Length may be a standard to judge whether any rear parts of lens hits any mechanical parts inside a camera.



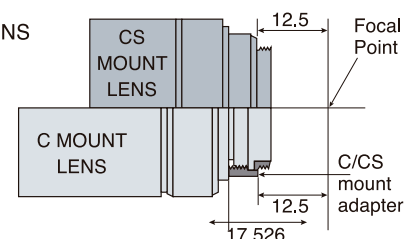
### 5. C Mount and CS Mount

#### Compatibility

	C Mount Camera	CS Mount Camera
C Mount Lens	OK	OK
CS Mount Lens	NO	OK

When using a C mount lens for a CS mount camera, attach a C/CS mount adapter (thickness 5mm) between the lens and camera.

#### C / CS MOUNT LENS (unit:mm)





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