

# MACHINE VISION LENS

## PRODUCT GUIDE



computer®

# NEW PRODUCTS

## MPY series

V0828-MPY



V1228-MPY



V1628-MPY



V2528-MPY



V3528-MPY



V5028-MPY



### 1.1" 12 MEGAPIXEL C-MOUNT LENS

- 8, 12, 16, 25, 35, 50mm. 6 Lens Series
- Compatible with 1.1" ( $\phi$  17.6mm) Large Format Sensor
- Ultra-High Resolution 12MP
- Compact 1.1" Design (smallest 12MP lens in the industry)
- Locking Screw for Focus and Iris

## MPW2 series

M0824-MPW2



M1224-MPW2



M1620-MPW2



M2518-MPW2



M3520-MPW2



M5028-MPW2



## TEC series

TEC-V7X



TEC-M55MPW



TEC-M55



### 5 MEGAPIXEL C-MOUNT LENS

- Ultra low distortion.
- Higher relative illumination rate
- Compact design
- Locking screws for focus and iris.
- JILA Standard 5 megapixel A-rank.

### TELECENTRIC LENS

- Low distortion
- For large sensor format ( 2/3" and 1.1")
- Higher relative illuminance.

## Introduction

When setting up your vision system, the lens may be one of the last components you choose. Once your system is up and running, however, **your data flows from the lens first**. That makes lens choice one of the most impactful decisions that will determine how well your vision system works for you. With the success of your next project on the line, turn to a partner with over 40 years of experience in precision-engineered optics.

Computar's Factory Automation line of lenses is engineered to meet the challenges of the most demanding vision systems. Featuring an unrivaled compact form factor, ultra-low distortion optics and a robust design meant to last decades, Computar lenses are quality you can count on. And with multiple format, resolution and iris options, Computar has the right fit for your application.

Don't let the lens be the weak link in your system. Choosing a great lens tailored to your system's needs can be daunting, but that's what we're here for. Talk to a lens specialist at Computar today and find out how we can assist in selecting the correct lens that will not only work with your system, but expand its potential.

In addition to high-quality products, we focus on creating an unparalleled service experience for our customers. Our sales and technical support staff operate across a vast network; meaning day or night a lens expert is a phone call away in a town near you. This, combined with our first-class inventory system, allows you to rapidly select, receive and integrate Computar lenses into your application.

With a solid foundation based on Japanese engineering and agile production facilities spanning the globe, we operate under a dual mandate to create the highest-quality optics products at an economical price point that works within your budget.

In the following pages, you'll find out more about the product family that has made Computar the gold standard in optics across a variety of industries.

We encourage you to contact us about any of our products, and find out for yourself how choosing Computar will enable your application to **See Everything. Clearly.**

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C-MOUNT  
1/2" 2/3"  
1.5MP

## MEGAPIXEL LENS

MACHINE VISION LENS

- Captures full resolution of megapixel cameras
- Low distortion (Less than 1.0%)
- Locking set screws for focus and iris

- High contrast & sharp picture in all areas of the screen
- Compact design-Diameter 33.5mm (H0514-MP : 44.5mm)

### H0514-MP2

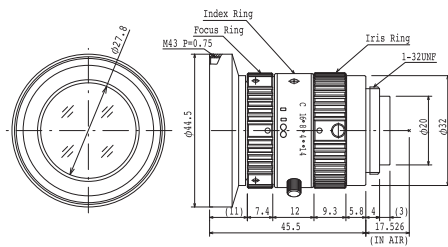
1/2"

1.5MP

FIX

MANUAL

WIDE



|                            |       |                            |       |      |       |
|----------------------------|-------|----------------------------|-------|------|-------|
| Focal Length               |       | 5mm                        |       |      |       |
| Max. Aperture Ratio        |       | 1:1.4                      |       |      |       |
| Max. Image Format          |       | 6.4mm x 4.8mm (φ 8mm)      |       |      |       |
| Operation Range            | Iris  | F1.4 - F16C                |       |      |       |
|                            | Focus | 0.1m - 0.9m                |       |      |       |
| Control                    | Iris  | Manual                     |       |      |       |
|                            | Focus | Manual                     |       |      |       |
| Object Dimension at M.O.D. |       | 15.0(H)cm x 11.1(V)cm 1/2" |       |      |       |
| Angle of View              | D     |                            | 76.7° |      | 62.3° |
|                            | H     | 1/2"                       | 65.5° | 1/3" | 51.4° |
|                            | V     |                            | 51.4° |      | 39.5° |
| Operating Temperature      |       | -10° C ~ +50° C            |       |      |       |

|                    |                   |                |      |                |
|--------------------|-------------------|----------------|------|----------------|
| Distortion         | 1/2"              | -0.48% (y=4.0) | 1/3" | -2.26% (y=3.0) |
| Back Focal Length  | 10.8mm (WD=900mm) |                |      |                |
| Flange Back Length | 17.526mm          |                |      |                |
| Mount              | C-Mount           |                |      |                |
| Filter Size        | M43 P=0.75mm      |                |      |                |
| Dimensions         | φ 44.5mm x 45.5mm |                |      |                |
| Weight             | 102g              |                |      |                |

| Working Distance<br>(mm) | Optical Magnification | Extension Ring<br>(mm) | Field of View(mm) |       |       |       |
|--------------------------|-----------------------|------------------------|-------------------|-------|-------|-------|
|                          |                       |                        | 1/2"              |       | 1/3"  |       |
|                          |                       |                        | H                 | V     | H     | V     |
| 900                      | 0.006X                | -                      | 1179.8            | 882.3 | 882.3 | 657.2 |
| 850                      | 0.006X                | -                      | 1115.4            | 834.2 | 834.2 | 621.3 |
| 800                      | 0.006X                | -                      | 1051.0            | 786.0 | 786.0 | 585.4 |
| 750                      | 0.007X                | -                      | 986.6             | 737.8 | 737.8 | 549.5 |
| 700                      | 0.007X                | -                      | 922.3             | 689.6 | 689.6 | 513.6 |
| 650                      | 0.008X                | -                      | 857.9             | 641.4 | 641.4 | 477.7 |
| 600                      | 0.008X                | -                      | 793.5             | 593.2 | 593.2 | 441.8 |
| 550                      | 0.009X                | -                      | 729.1             | 545.0 | 545.0 | 405.9 |
| 500                      | 0.010X                | -                      | 664.7             | 496.9 | 496.9 | 370.0 |
| 450                      | 0.011X                | -                      | 600.3             | 448.7 | 448.7 | 334.1 |
| 400                      | 0.012X                | -                      | 535.9             | 400.5 | 400.5 | 298.2 |
| 350                      | 0.014X                | -                      | 471.5             | 352.3 | 352.3 | 262.3 |
| 300                      | 0.016X                | -                      | 407.1             | 304.1 | 304.1 | 226.4 |
| 250                      | 0.019X                | -                      | 342.7             | 255.9 | 255.9 | 190.5 |
| 200                      | 0.024X                | -                      | 278.4             | 207.8 | 207.8 | 154.6 |
| 150                      | 0.031X                | -                      | 214.0             | 159.6 | 159.6 | 118.7 |
| 100                      | 0.044X                | -                      | 149.6             | 111.4 | 111.4 | 82.8  |

Field of View = CCD Size / Optical Magnification

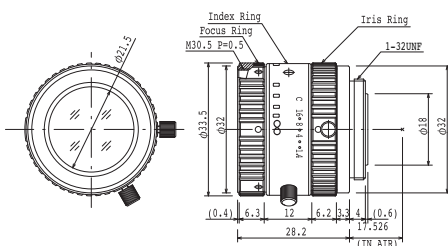
### M0814-MP2

2/3"

1.5MP

FIX

MANUAL



|                            |       |                           |       |      |       |
|----------------------------|-------|---------------------------|-------|------|-------|
| Focal Length               |       | 8mm                       |       |      |       |
| Max. Aperture Ratio        |       | 1:1.4                     |       |      |       |
| Max. Image Format          |       | 8.8mm x 6.6mm (φ 11mm)    |       |      |       |
| Operation Range            | Iris  | F1.4 - F16C               |       |      |       |
|                            | Focus | 0.1m - Inf.               |       |      |       |
| Control                    | Iris  | Manual                    |       |      |       |
|                            | Focus | Manual                    |       |      |       |
| Object Dimension at M.O.D. |       | 12.1(H)cm x 9.0(V)cm 2/3" |       |      |       |
| Angle of View              | D     | 2/3"                      | 67.1° | 1/2" | 51.9° |
|                            | H     |                           | 56.3° |      | 42.5° |
|                            | V     |                           | 43.7° |      | 32.4° |
| Operating Temperature      |       | - 1 0° C ~ +50° C         |       |      |       |

|                    |                   |               |      |               |
|--------------------|-------------------|---------------|------|---------------|
| Distortion         | 2/3"              | -0.1% (y=5.5) | 1/2" | -1.1% (y=4.0) |
| Back Focal Length  | 13.1mm (Inf)      |               |      |               |
| Flange Back Length | 17.526mm          |               |      |               |
| Mount              | C-Mount           |               |      |               |
| Filter Size        | M30.5 P=0.5mm     |               |      |               |
| Dimensions         | φ 33.5mm x 28.2mm |               |      |               |
| Weight             | 63g               |               |      |               |

| Working Distance<br>(mm) | Optical Magnification | Extension Ring<br>(mm) | Field of View(mm) |       |       |       |
|--------------------------|-----------------------|------------------------|-------------------|-------|-------|-------|
|                          |                       |                        | 2/3"              |       | 1/2"  |       |
|                          |                       |                        | H                 | V     | H     | V     |
| 900                      | 0.009X                | -                      | 976.8             | 731.5 | 709.1 | 530.1 |
| 850                      | 0.010X                | -                      | 923.3             | 691.4 | 670.2 | 501.0 |
| 800                      | 0.010X                | -                      | 869.8             | 651.3 | 631.4 | 471.9 |
| 750                      | 0.011X                | -                      | 816.3             | 611.2 | 592.5 | 442.8 |
| 700                      | 0.012X                | -                      | 762.8             | 571.1 | 553.6 | 413.8 |
| 650                      | 0.013X                | -                      | 709.3             | 531.0 | 514.7 | 384.7 |
| 600                      | 0.014X                | -                      | 655.8             | 490.9 | 475.8 | 355.6 |
| 550                      | 0.015X                | -                      | 602.3             | 450.8 | 437.0 | 326.5 |
| 500                      | 0.016X                | -                      | 548.8             | 410.7 | 398.1 | 297.5 |
| 450                      | 0.018X                | -                      | 495.3             | 370.6 | 359.2 | 268.4 |
| 400                      | 0.020X                | -                      | 441.8             | 330.5 | 320.3 | 239.3 |
| 350                      | 0.023X                | -                      | 388.3             | 290.4 | 281.4 | 210.2 |
| 300                      | 0.027X                | -                      | 334.8             | 250.3 | 242.6 | 181.2 |
| 250                      | 0.032X                | -                      | 281.2             | 210.2 | 203.7 | 152.1 |
| 200                      | 0.039X                | -                      | 227.7             | 170.0 | 164.8 | 123.0 |
| 150                      | 0.052X                | -                      | 174.2             | 129.9 | 125.9 | 93.9  |
| 100                      | 0.075X                | -                      | 120.7             | 89.8  | 87.0  | 64.9  |

Field of View = CCD Size / Optical Magnification

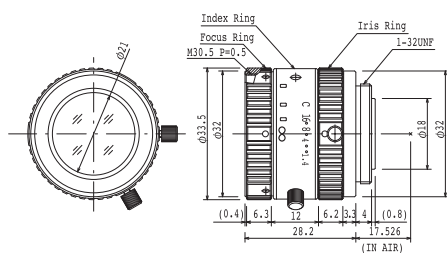
## M1214-MP2

2/3"

1.5MP

FIX

MANUAL



|                            |       |                           |       |      |       |
|----------------------------|-------|---------------------------|-------|------|-------|
| Focal Length               |       | 12mm                      |       |      |       |
| Max. Aperture Ratio        |       | 1:1.4                     |       |      |       |
| Max. Image Format          |       | 8.8mm x 6.6mm (φ11mm)     |       |      |       |
| Operation Range            | Iris  | F1.4 - F16C               |       |      |       |
|                            | Focus | 0.15m - Inf.              |       |      |       |
| Control                    | Iris  | Manual                    |       |      |       |
|                            | Focus | Manual                    |       |      |       |
| Object Dimension at M.O.D. |       | 12.1(H)cm x 9.0(V)cm 2/3" |       |      |       |
| Angle of View              | D     |                           | 49.2° |      | 37.0° |
|                            | H     | 2/3"                      | 40.4° | 1/2" | 30.0° |
|                            | V     |                           | 30.8° |      | 22.7° |
| Operating Temperature      |       | - 10° C ~ +50° C          |       |      |       |

|                    |                    |                     |
|--------------------|--------------------|---------------------|
| Distortion         | 2/3" -0.1% (y=5.5) | 1/2" -0.35% (y=4.0) |
| Back Focal Length  | 13.1mm (Inf)       |                     |
| Flange Back Length | 17.526mm           |                     |
| Mount              | C-Mount            |                     |
| Filter Size        | M30.5 P=0.5mm      |                     |
| Dimensions         | φ 33.5mm x 28.2mm  |                     |
| Weight             | 62g                |                     |

| Working Distance<br>(mm) | Optical Magnification | Extension Ring<br>(mm) | Field of View(mm) |       |       |       |
|--------------------------|-----------------------|------------------------|-------------------|-------|-------|-------|
|                          |                       |                        | 2/3"              |       | 1/2"  |       |
|                          |                       |                        | H                 | V     | H     | V     |
| 900                      | 0.013X                | -                      | 672.7             | 504.0 | 488.7 | 366.0 |
| 850                      | 0.014X                | -                      | 635.9             | 476.4 | 461.9 | 345.9 |
| 800                      | 0.015X                | -                      | 599.1             | 448.9 | 435.2 | 325.9 |
| 750                      | 0.016X                | -                      | 562.4             | 421.3 | 408.4 | 305.9 |
| 700                      | 0.017X                | -                      | 525.6             | 393.7 | 381.7 | 285.8 |
| 650                      | 0.018X                | -                      | 488.8             | 366.1 | 355.0 | 265.8 |
| 600                      | 0.020X                | -                      | 452.1             | 338.5 | 328.2 | 245.7 |
| 550                      | 0.021X                | -                      | 415.3             | 311.0 | 301.5 | 225.7 |
| 500                      | 0.023X                | -                      | 378.5             | 283.4 | 274.7 | 205.7 |
| 450                      | 0.026X                | -                      | 341.7             | 255.8 | 248.0 | 185.6 |
| 400                      | 0.029X                | -                      | 305.0             | 228.2 | 221.2 | 165.6 |
| 350                      | 0.033X                | -                      | 268.2             | 200.6 | 194.5 | 145.6 |
| 300                      | 0.038X                | -                      | 231.4             | 173.0 | 167.7 | 125.5 |
| 250                      | 0.046X                | -                      | 194.7             | 145.5 | 141.0 | 105.5 |
| 200                      | 0.056X                | -                      | 157.9             | 117.9 | 114.3 | 85.4  |
| 150                      | 0.074X                | -                      | 121.1             | 90.3  | 87.5  | 65.4  |
| 100                      | 0.106X                | 0.5                    | 84.3              | 62.7  | 60.8  | 45.4  |

Field of View = CCD Size / Optical Magnification

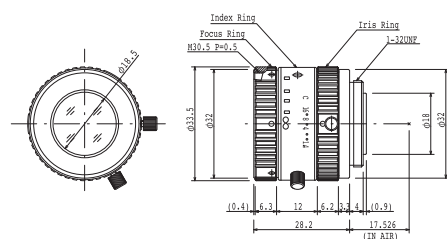
## M1614-MP2

2/3"

1.5MP

FIX

MANUAL



|                            |                       |                            |                  |      |       |
|----------------------------|-----------------------|----------------------------|------------------|------|-------|
| Focal Length               |                       | 16mm                       |                  |      |       |
| Max. Aperture Ratio        |                       | 1:1.4                      |                  |      |       |
| Max. Image Format          |                       | 8.8mm x 6.6mm (φ11mm)      |                  |      |       |
| Operation Range            | Iris                  | F1.4 - F16C                |                  |      |       |
|                            | Focus                 | 0.3m - Inf.                |                  |      |       |
| Control                    | Iris                  | Manual                     |                  |      |       |
|                            | Focus                 | Manual                     |                  |      |       |
| Object Dimension at M.O.D. |                       | 17.2(H)cm x 12.9(V)cm 2/3" |                  |      |       |
| Angle of View              | D                     | 2/3"                       | 38.0°            | 1/2" | 28.2° |
|                            | H                     |                            | 30.8°            |      | 22.7° |
|                            | V                     | 23.4°                      | 17.1°            |      |       |
|                            | Operating Temperature |                            | - 10° C ~ +50° C |      |       |

|                    |                    |                    |
|--------------------|--------------------|--------------------|
| Distortion         | 2/3" -0.1% (y=5.5) | 1/2" -0.3% (y=4.0) |
| Back Focal Length  | 13.1mm (Inf)       |                    |
| Flange Back Length | 17.526mm           |                    |
| Mount              | C-Mount            |                    |
| Filter Size        | M30.5 P=0.5mm      |                    |
| Dimensions         | φ 33.5mm x 28.2mm  |                    |
| Weight             | 60g                |                    |

| Working Distance<br>(mm) | Optical Magnification | Extension Ring<br>(mm) | Field of View(mm) |       |       |       |
|--------------------------|-----------------------|------------------------|-------------------|-------|-------|-------|
|                          |                       |                        | 2/3"              |       | 1/2"  |       |
|                          |                       |                        | H                 | V     | H     | V     |
| 900                      | 0.018X                | -                      | 503.2             | 376.8 | 365.4 | 273.7 |
| 850                      | 0.019X                | -                      | 475.6             | 356.2 | 345.3 | 258.6 |
| 800                      | 0.020X                | -                      | 448.0             | 335.5 | 325.3 | 243.6 |
| 750                      | 0.021X                | -                      | 420.4             | 314.8 | 305.2 | 228.6 |
| 700                      | 0.023X                | -                      | 392.8             | 294.1 | 285.2 | 213.6 |
| 650                      | 0.024X                | -                      | 365.2             | 273.4 | 265.1 | 198.5 |
| 600                      | 0.026X                | -                      | 337.6             | 252.8 | 245.1 | 183.5 |
| 550                      | 0.029X                | -                      | 310.0             | 232.1 | 225.0 | 168.5 |
| 500                      | 0.031X                | -                      | 282.5             | 211.4 | 204.9 | 153.5 |
| 450                      | 0.035X                | -                      | 254.9             | 190.7 | 184.9 | 138.4 |
| 400                      | 0.039X                | -                      | 227.3             | 170.0 | 164.8 | 123.4 |
| 350                      | 0.044X                | -                      | 199.7             | 149.4 | 144.8 | 108.4 |
| 300                      | 0.052X                | -                      | 172.1             | 128.7 | 124.7 | 93.4  |
| 250                      | 0.061X                | -                      | 144.5             | 108.0 | 104.7 | 78.3  |
| 200                      | 0.076X                | -                      | 116.9             | 87.3  | 84.6  | 63.3  |
| 150                      | 0.100X                | 0.5                    | 89.3              | 66.6  | 64.6  | 48.3  |
| 100                      | 0.145X                | 1.0                    | 61.7              | 45.9  | 44.5  | 33.2  |

Field of View = CCD Size / Optical Magnification

C-MOUNT  
2/3" 1.5MP

## MEGAPIXEL LENS

MACHINE VISION LENS

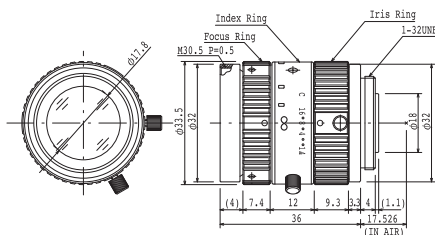
### M2514-MP2

2/3"

1.5MP

FIX

MANUAL



|                            |       |                           |       |      |       |
|----------------------------|-------|---------------------------|-------|------|-------|
| Focal Length               |       | 25mm                      |       |      |       |
| Max. Aperture Ratio        |       | 1:1.4                     |       |      |       |
| Max. Image Format          |       | 8.8mm x 6.6mm (ø 11mm)    |       |      |       |
| Operation Range            | Iris  | F1.4 - F16C               |       |      |       |
|                            | Focus | 0.3m - Inf.               |       |      |       |
| Control                    | Iris  | Manual                    |       |      |       |
|                            | Focus | Manual                    |       |      |       |
| Object Dimension at M.O.D. |       | 10.6(H)cm x 7.9(V)cm 2/3" |       |      |       |
| Angle of View              | D     | 2/3"                      | 24.9° | 1/2" | 18.2° |
|                            | H     |                           | 20.0° |      | 14.6° |
|                            | V     | 15.1°                     | 11.0° |      |       |
| Operating Temperature      |       | -10° C ~ +50° C           |       |      |       |

|                    |                   |               |      |               |
|--------------------|-------------------|---------------|------|---------------|
| Distortion         | 2/3"              | -0.3% (y=5.5) | 1/2" | -0.1% (y=4.0) |
| Back Focal Length  | 13.1mm (Inf)      |               |      |               |
| Flange Back Length | 17.526mm          |               |      |               |
| Mount              | C-Mount           |               |      |               |
| Filter Size        | M30.5 P=0.5mm     |               |      |               |
| Dimensions         | φ 33.5mm x 36.0mm |               |      |               |
| Weight             | 71g               |               |      |               |

| Working Distance<br>(mm) | Optical Magnification | Extension Ring<br>(mm) | Field of View(mm) |       |       |       |
|--------------------------|-----------------------|------------------------|-------------------|-------|-------|-------|
|                          |                       |                        | 2/3"              |       | 1/2"  |       |
|                          |                       |                        | H                 | V     | H     | V     |
| 900                      | 0.028X                | -                      | 317.5             | 237.7 | 230.5 | 172.7 |
| 850                      | 0.029X                | -                      | 299.9             | 224.5 | 217.7 | 163.1 |
| 800                      | 0.031X                | -                      | 282.3             | 211.3 | 204.8 | 153.5 |
| 750                      | 0.033X                | -                      | 264.6             | 198.1 | 192.0 | 143.9 |
| 700                      | 0.036X                | -                      | 247.0             | 184.9 | 179.2 | 134.3 |
| 650                      | 0.039X                | -                      | 229.4             | 171.6 | 166.4 | 124.7 |
| 600                      | 0.042X                | -                      | 211.8             | 158.4 | 153.6 | 115.1 |
| 550                      | 0.046X                | -                      | 194.1             | 145.2 | 140.8 | 105.5 |
| 500                      | 0.050X                | -                      | 176.5             | 132.0 | 128.0 | 95.9  |
| 450                      | 0.056X                | -                      | 158.9             | 118.8 | 115.2 | 86.3  |
| 400                      | 0.063X                | -                      | 141.2             | 105.6 | 102.4 | 76.7  |
| 350                      | 0.072X                | -                      | 123.6             | 92.4  | 89.6  | 67.1  |
| 300                      | 0.084X                | -                      | 106.0             | 79.2  | 76.8  | 57.5  |
| 250                      | 0.100X                | -                      | 88.3              | 66.0  | 63.9  | 47.9  |
| 200                      | 0.126X                | -                      | 70.7              | 52.7  | 51.1  | 38.3  |
| 150                      | 0.168X                | -                      | 53.0              | 39.5  | 38.3  | 28.7  |
| 100                      | 0.253X                | 1.5                    | 35.3              | 26.3  | 25.5  | 19.0  |

Field of View = CCD Size / Optical Magnification

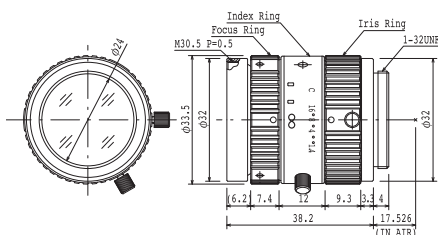
### M3514-MP

2/3"

1.5MP

FIX

MANUAL



|                            |       |                        |       |      |       |
|----------------------------|-------|------------------------|-------|------|-------|
| Focal Length               |       | 35mm                   |       |      |       |
| Max. Aperture Ratio        |       | 1:1.4                  |       |      |       |
| Max. Image Format          |       | 8.8mm x 6.6mm (ø 11mm) |       |      |       |
| Operation Range            | Iris  | F1.4 - F16C            |       |      |       |
|                            | Focus | 0.3m - Inf.            |       |      |       |
| Control                    | Iris  | Manual                 |       |      |       |
|                            | Focus | Manual                 |       |      |       |
| Object Dimension at M.O.D. |       | 8.1(H)cm x 6(V)cm 2/3" |       |      |       |
| Angle of View              | D     | 2/3"                   | 17.3° | 1/2" | 12.6° |
|                            | H     |                        | 13.9° |      | 10.1° |
|                            | V     |                        | 10.4° |      | 7.6°  |
| Operating Temperature      |       | -10° C ~ +50° C        |       |      |       |

|                    |                   |               |      |               |
|--------------------|-------------------|---------------|------|---------------|
| Distortion         | 2/3"              | -0.8% (y=5.5) | 1/2" | -0.4% (y=4.0) |
| Back Focal Length  | 17.1mm (WD=400mm) |               |      |               |
| Flange Back Length | 17.526mm          |               |      |               |
| Mount              | C-Mount           |               |      |               |
| Filter Size        | M30.5 P=0.5mm     |               |      |               |
| Dimensions         | φ 33.5mm x 38.2mm |               |      |               |
| Weight             | 87g               |               |      |               |

| Working Distance<br>(mm) | Optical Magnification | Extension Ring<br>(mm) | Field of View(mm) |       |       |       |
|--------------------------|-----------------------|------------------------|-------------------|-------|-------|-------|
|                          |                       |                        | 2/3"              |       | 1/2"  |       |
|                          |                       |                        | H                 | V     | H     | V     |
| 900                      | 0.037                 | -                      | 236.2             | 176.9 | 171.5 | 128.6 |
| 850                      | 0.040                 | -                      | 223.2             | 167.2 | 162.1 | 121.5 |
| 800                      | 0.042                 | -                      | 210.3             | 157.5 | 152.7 | 114.5 |
| 750                      | 0.045                 | -                      | 197.3             | 147.8 | 143.3 | 107.4 |
| 700                      | 0.048                 | -                      | 184.3             | 138.1 | 133.9 | 100.3 |
| 650                      | 0.052                 | -                      | 171.4             | 128.4 | 124.5 | 93.3  |
| 600                      | 0.056                 | -                      | 158.4             | 118.6 | 115.0 | 86.2  |
| 550                      | 0.061                 | -                      | 145.5             | 108.9 | 105.6 | 79.1  |
| 500                      | 0.067                 | -                      | 132.5             | 99.2  | 96.2  | 72.1  |
| 450                      | 0.074                 | -                      | 119.6             | 89.5  | 86.8  | 65.0  |
| 400                      | 0.083                 | -                      | 106.6             | 79.8  | 77.4  | 58.0  |
| 350                      | 0.094                 | -                      | 93.7              | 70.1  | 67.9  | 50.9  |
| 300                      | 0.110                 | -                      | 80.7              | 60.4  | 58.5  | 43.8  |
| 250                      | 0.131                 | 1                      | 67.7              | 50.6  | 49.1  | 36.8  |
| 200                      | 0.162                 | 2                      | 54.7              | 40.9  | 39.7  | 29.7  |
| 150                      | 0.213                 | 5                      | 41.8              | 31.2  | 30.2  | 22.6  |
| 100                      | 0.310                 | 7                      | 28.7              | 21.4  | 20.8  | 15.5  |

Field of View = CCD Size / Optical Magnification

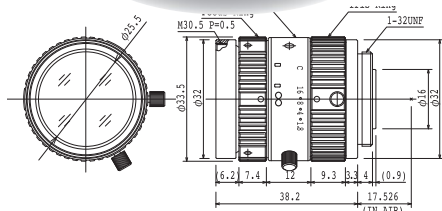
## M5018-MP2

2/3"

1.5MP

FIX

MANUAL



|                            |       |                          |       |      |      |
|----------------------------|-------|--------------------------|-------|------|------|
| Focal Length               |       | 50mm                     |       |      |      |
| Max. Aperture Ratio        |       | 1:1.8                    |       |      |      |
| Max. Image Format          |       | 8.8mm x 6.6mm (φ11mm)    |       |      |      |
| Operation Range            | Iris  | F1.8 - F16C              |       |      |      |
|                            | Focus | 0.5m - Inf.              |       |      |      |
| Control                    | Iris  | Manual                   |       |      |      |
|                            | Focus | Manual                   |       |      |      |
| Object Dimension at M.O.D. |       | 8.7(H)cm x 6.5(V)cm 2/3" |       |      |      |
| Angle of View              | D     | 2/3"                     | 13.1° | 1/2" | 9.5° |
|                            | H     |                          | 10.5° |      | 7.6° |
|                            | V     |                          | 7.9°  |      | 5.7° |
| Operating Temperature      |       | -10° C ~ +50° C          |       |      |      |

|                    |                    |                    |
|--------------------|--------------------|--------------------|
| Distortion         | 2/3" -0.3% (y=5.5) | 1/2" -0.2% (y=4.0) |
| Back Focal Length  | 13.1mm (Inf)       |                    |
| Flange Back Length | 17.526mm           |                    |
| Mount              | C-Mount            |                    |
| Filter Size        | M30.5 P=0.5mm      |                    |
| Dimensions         | φ 33.5mm x 38.2mm  |                    |
| Weight             | 85g                |                    |

| Working Distance<br>(mm) | Optical Magnification | Extension Ring<br>(mm) | Field of View(mm) |       |       |      |
|--------------------------|-----------------------|------------------------|-------------------|-------|-------|------|
|                          |                       |                        | 2/3"              |       | 1/2"  |      |
|                          |                       |                        | H                 | V     | H     | V    |
| 900                      | 0.055X                | -                      | 160.8             | 120.4 | 116.7 | 87.5 |
| 850                      | 0.058X                | -                      | 151.6             | 113.5 | 110.1 | 82.5 |
| 800                      | 0.062X                | -                      | 142.4             | 106.6 | 103.4 | 77.5 |
| 750                      | 0.066X                | -                      | 133.2             | 99.7  | 96.7  | 72.5 |
| 700                      | 0.071X                | -                      | 124.0             | 92.9  | 90.0  | 67.5 |
| 650                      | 0.077X                | -                      | 114.8             | 86.0  | 83.4  | 62.5 |
| 600                      | 0.084X                | -                      | 105.6             | 79.1  | 76.7  | 57.5 |
| 550                      | 0.092X                | -                      | 96.5              | 72.2  | 70.1  | 52.5 |
| 500                      | 0.101X                | -                      | 87.3              | 65.3  | 63.3  | 47.5 |
| 450                      | 0.113X                | 0.5                    | 78.1              | 58.4  | 56.7  | 42.5 |
| 400                      | 0.128X                | 1.5                    | 68.9              | 51.6  | 50.0  | 37.5 |
| 350                      | 0.148X                | 2.5                    | 59.7              | 44.7  | 43.3  | 32.5 |
| 300                      | 0.175X                | 3.5                    | 50.5              | 37.8  | 36.6  | 27.4 |
| 250                      | 0.214X                | 5.5                    | 41.3              | 30.9  | 30.0  | 22.4 |
| 200                      | 0.276X                | 8.5                    | 32.1              | 24.0  | 23.3  | 17.4 |
| 150                      | 0.387X                | 14.0                   | 22.9              | 17.1  | 16.6  | 12.4 |
| 100                      | 0.647X                | 26.5                   | 13.6              | 10.2  | 9.9   | 7.4  |

Field of View = CCD Size / Optical Magnification

## M7528-MP

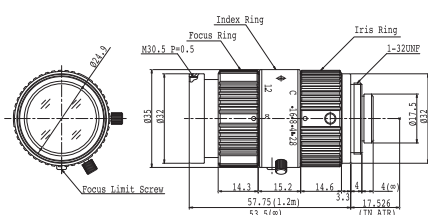
2/3"

1.5MP

FIX

MANUAL

TELE



|                            |       |                          |      |      |      |
|----------------------------|-------|--------------------------|------|------|------|
| Focal Length               |       | 75mm                     |      |      |      |
| Max. Aperture Ratio        |       | 1:2.8                    |      |      |      |
| Max. Image Format          |       | 8.8mm x 6.6mm (φ 11mm)   |      |      |      |
| Operation Range            | Iris  | F2.8 - F16C              |      |      |      |
|                            | Focus | 0.3m - Inf. ( ※ )        |      |      |      |
| Control                    | Iris  | Manual                   |      |      |      |
|                            | Focus | Manual                   |      |      |      |
| Object Dimension at M.O.D. |       | 4.1(H)cm x 3.1(V)cm 2/3" |      |      |      |
| Angle of View              | D     | 2/3"                     | 8.5° | 1/2" | 6.2° |
|                            | H     |                          | 6.8° |      | 5°   |
|                            | V     | 5.1°                     | 3.7° |      |      |
| Operating Temperature      |       | - 10° C ~ +50° C         |      |      |      |

|                    |                    |                    |
|--------------------|--------------------|--------------------|
| Distortion         | 2/3" -0.4% (y=5.5) | 1/2" -0.2% (y=4.0) |
| Back Focal Length  | 21.5mm (WD=400mm)  |                    |
| Flange Back Length | 17.526mm           |                    |
| Mount              | C-Mount            |                    |
| Filter Size        | M30.5 P=0.5mm      |                    |
| Dimensions         | φ 35mm x 57.75mm   |                    |
| Weight             | 113g               |                    |

※ Factory setting is 0.3-1.2m. Focus can be adjusted to infinity by removing "Focus Limit Screw".

| Working Distance<br>(mm) | Optical Magnification | Extension Ring<br>(mm) | Field of View(mm) |      |      |      |
|--------------------------|-----------------------|------------------------|-------------------|------|------|------|
|                          |                       |                        | 2/3"              |      | 1/2" |      |
|                          |                       |                        | H                 | V    | H    | V    |
| 900                      | 0.077                 | -                      | 113.8             | 85.4 | 82.8 | 62.1 |
| 850                      | 0.082                 | -                      | 107.8             | 80.8 | 78.4 | 58.8 |
| 800                      | 0.086                 | -                      | 101.7             | 76.3 | 74.0 | 55.5 |
| 750                      | 0.092                 | -                      | 95.7              | 71.8 | 69.6 | 52.2 |
| 700                      | 0.098                 | -                      | 89.6              | 67.2 | 65.2 | 48.9 |
| 650                      | 0.105                 | -                      | 83.6              | 62.7 | 60.8 | 45.6 |
| 600                      | 0.114                 | -                      | 77.6              | 58.1 | 56.4 | 42.3 |
| 550                      | 0.123                 | -                      | 71.5              | 53.6 | 52.0 | 39.0 |
| 500                      | 0.135                 | -                      | 65.5              | 49.1 | 47.6 | 35.7 |
| 450                      | 0.148                 | -                      | 59.4              | 44.5 | 43.2 | 32.4 |
| 400                      | 0.165                 | -                      | 53.4              | 40.0 | 38.8 | 29.1 |
| 350                      | 0.187                 | -                      | 47.3              | 35.4 | 34.4 | 25.8 |
| 300                      | 0.214                 | -                      | 41.3              | 30.9 | 30.0 | 22.5 |
| 250                      | 0.251                 | 5                      | 35.2              | 26.4 | 25.6 | 19.1 |
| 200                      | 0.304                 | 7                      | 29.2              | 21.8 | 21.2 | 15.8 |
| 150                      | 0.384                 | 13                     | 23.1              | 17.3 | 16.8 | 12.5 |
| 100                      | 0.522                 | 23                     | 17.1              | 12.7 | 12.3 | 9.2  |

Field of View = CCD Size / Optical Magnification

C-MOUNT  
2/3" 5MP

## 5 MEGA PIXEL ULTRA LOW DISTORTION LENS

MACHINE VISION LENS

- Ultra low distortion (optical distortion 0.1% or less)
- Higher relative illumination rate
- Compact design

- Locking set screws for focus and iris

### M0824-MPW2

2/3"

5MP

FIX

MANUAL



|                            |       |                         |        |        |  |  |
|----------------------------|-------|-------------------------|--------|--------|--|--|
| Focal Length               |       | 8mm                     |        |        |  |  |
| Max. Aperture Ratio        |       | 1:2.4                   |        |        |  |  |
| Max. Image Format          |       | 8.8mm x 6.6mm ( ϕ 11mm) |        |        |  |  |
| Operation Range            | Iris  | F2.4 - F16.0            |        |        |  |  |
|                            | Focus | 0.05m - Inf.            |        |        |  |  |
| Control                    | Iris  | Manual                  |        |        |  |  |
|                            | Focus | Manual                  |        |        |  |  |
| Object Dimension at M.O.D. |       | 5.4cm x 7.4cm 2/3"      |        |        |  |  |
| Angle of View              | D     | 69.32°                  | 56.90° | 53.23° |  |  |
|                            | H     | 57.80°                  | 46.72° | 43.74° |  |  |
|                            | V     | 44.36°                  | 35.75° | 33.23° |  |  |
| Operating Temperature      |       | -10° C ~ +50° C         |        |        |  |  |

|                    |                  |              |        |                |      |               |
|--------------------|------------------|--------------|--------|----------------|------|---------------|
| Distortion         | 2/3"             | 1.87%(y=5.5) | 1/1.8" | -1.55%(y=4.32) | 1/2" | -1.42%(y=4.0) |
| Back Focal Length  | 13.7mm(WD=300mm) |              |        |                |      |               |
| Flange Back Length | 17.526mm         |              |        |                |      |               |
| Mount              | C-Mount          |              |        |                |      |               |
| Filter Size        | M30.5 P=0.5mm    |              |        |                |      |               |
| Dimensions         | φ 32mm x 45.71mm |              |        |                |      |               |
| Weight             | 80g              |              |        |                |      |               |

| Working Distance<br>(mm) | Optical Magnification | Extension Ring<br>(mm) | Field of View(mm) |       |        |       |       |       |
|--------------------------|-----------------------|------------------------|-------------------|-------|--------|-------|-------|-------|
|                          |                       |                        | 2/3"              |       | 1/1.8" |       | 1/2"  |       |
|                          |                       |                        | H                 | V     | H      | V     | H     | V     |
| 900                      | -0.009                | -                      | 1011.1            | 755.4 | 791.6  | 591.5 | 732.2 | 547.3 |
| 850                      | -0.009                | -                      | 956.0             | 714.2 | 748.5  | 559.3 | 692.3 | 517.4 |
| 800                      | -0.010                | -                      | 900.9             | 673.0 | 705.3  | 527.0 | 652.3 | 487.6 |
| 750                      | -0.011                | -                      | 845.8             | 631.8 | 662.1  | 494.7 | 612.4 | 457.7 |
| 700                      | -0.011                | -                      | 790.7             | 590.6 | 618.9  | 462.5 | 572.5 | 427.8 |
| 650                      | -0.012                | -                      | 735.6             | 549.4 | 575.8  | 430.2 | 532.5 | 398.0 |
| 600                      | -0.013                | -                      | 680.4             | 508.2 | 532.6  | 397.9 | 492.6 | 368.1 |
| 550                      | -0.014                | -                      | 625.3             | 467.0 | 489.4  | 365.6 | 452.6 | 338.3 |
| 500                      | -0.016                | -                      | 570.0             | 425.6 | 446.0  | 333.2 | 412.6 | 308.2 |
| 450                      | -0.017                | -                      | 515.0             | 384.4 | 403.0  | 301.0 | 372.6 | 278.4 |
| 400                      | -0.019                | -                      | 459.8             | 343.2 | 359.8  | 268.8 | 332.6 | 248.6 |
| 350                      | -0.022                | -                      | 404.6             | 302.0 | 316.6  | 236.4 | 292.8 | 218.8 |
| 300                      | -0.026                | -                      | 349.6             | 260.8 | 273.4  | 204.2 | 252.8 | 188.8 |
| 250                      | -0.030                | -                      | 294.4             | 219.6 | 230.2  | 171.8 | 212.8 | 159.0 |
| 200                      | -0.037                | -                      | 239.4             | 178.4 | 187.0  | 139.6 | 173.0 | 129.2 |
| 150                      | -0.049                | -                      | 184.2             | 137.2 | 143.8  | 107.4 | 133.0 | 99.2  |
| 100                      | -0.070                | -                      | 129.0             | 96.0  | 100.6  | 75.0  | 93.0  | 69.4  |
| 50                       | -0.127                | -                      | 71.4              | 52.9  | 55.5   | 41.3  | 51.3  | 38.2  |

Field of View = CCD Size / Optical Magnification

### M1224-MPW2

2/3"

5MP

FIX

MANUAL



|                            |       |                         |       |        |       |      |       |
|----------------------------|-------|-------------------------|-------|--------|-------|------|-------|
| Focal Length               |       | 12mm                    |       |        |       |      |       |
| Max. Aperture Ratio        |       | 1:2.4                   |       |        |       |      |       |
| Max. Image Format          |       | 8.8mm x 6.6mm ( ϕ 11mm) |       |        |       |      |       |
| Operation Range            | Iris  | F2.4 - F16.0            |       |        |       |      |       |
|                            | Focus | 0.1m - Inf.             |       |        |       |      |       |
| Control                    | Iris  | Manual                  |       |        |       |      |       |
|                            | Focus | Manual                  |       |        |       |      |       |
| Object Dimension at M.O.D. |       | 6.4cm x 8.5cm 2/3"      |       |        |       |      |       |
| Angle of View              | D     |                         | 48.6° |        | 39.1° |      | 36.5° |
|                            | H     | 2/3"                    | 39.8° | 1/1.8" | 31.7° | 1/2" | 29.5° |
|                            | V     |                         | 30.4° |        | 24.0° |      | 22.3° |
| Operating Temperature      |       | -10° C ~ +50° C         |       |        |       |      |       |

|                    |                  |               |        |                |      |               |
|--------------------|------------------|---------------|--------|----------------|------|---------------|
| Distortion         | 2/3"             | -0.05%(y=5.5) | 1/1.8" | -0.34%(y=4.32) | 1/2" | -0.35%(y=4.0) |
| Back Focal Length  | 14.4mm(WD=300mm) |               |        |                |      |               |
| Flange Back Length | 17.526mm         |               |        |                |      |               |
| Mount              | C-Mount          |               |        |                |      |               |
| Filter Size        | M27.0 P=0.5mm    |               |        |                |      |               |
| Dimensions         | φ 29mm x 42.68mm |               |        |                |      |               |
| Weight             | 72g              |               |        |                |      |               |

| Working Distance<br>(mm) | Optical Magnification | Extension Ring<br>(mm) | Field of View(mm) |       |        |       |       |       |
|--------------------------|-----------------------|------------------------|-------------------|-------|--------|-------|-------|-------|
|                          |                       |                        | 2/3"              |       | 1/1.8" |       | 1/2"  |       |
|                          |                       |                        | H                 | V     | H      | V     | H     | V     |
| 900                      | -0.0131               | -                      | 671.2             | 503.7 | 527.5  | 395.5 | 488.4 | 366.1 |
| 850                      | -0.0138               | -                      | 634.6             | 476.2 | 498.7  | 373.9 | 461.8 | 346.1 |
| 800                      | -0.0147               | -                      | 598.0             | 448.7 | 469.9  | 352.3 | 435.1 | 326.1 |
| 750                      | -0.0157               | -                      | 561.4             | 421.2 | 441.1  | 330.7 | 408.4 | 306.1 |
| 700                      | -0.016                | -                      | 524.7             | 393.7 | 412.3  | 309.1 | 381.8 | 286.1 |
| 650                      | -0.018                | -                      | 488.1             | 366.2 | 383.5  | 287.5 | 355.1 | 266.1 |
| 600                      | -0.019                | -                      | 451.5             | 338.7 | 354.7  | 265.9 | 328.4 | 246.1 |
| 550                      | -0.021                | -                      | 414.8             | 311.2 | 325.9  | 244.3 | 301.7 | 226.1 |
| 500                      | -0.022                | -                      | 378.2             | 283.7 | 297.2  | 222.7 | 275.1 | 206.2 |
| 450                      | -0.026                | -                      | 341.6             | 256.2 | 268.4  | 201.1 | 248.4 | 186.2 |
| 400                      | -0.029                | -                      | 305.0             | 228.7 | 239.6  | 179.5 | 221.8 | 166.2 |
| 350                      | -0.033                | -                      | 268.3             | 201.2 | 210.8  | 157.9 | 195.1 | 146.2 |
| 300                      | -0.038                | -                      | 231.7             | 173.7 | 182.0  | 136.3 | 168.4 | 126.2 |
| 250                      | -0.045                | -                      | 195.1             | 146.2 | 153.2  | 114.7 | 141.8 | 106.2 |
| 200                      | -0.056                | -                      | 158.5             | 118.7 | 124.4  | 93.1  | 115.1 | 86.2  |
| 150                      | -0.073                | -                      | 121.8             | 91.2  | 95.6   | 71.5  | 88.4  | 66.2  |
| 100                      | -0.104                | -                      | 85.2              | 63.7  | 66.8   | 50.0  | 61.8  | 46.2  |

Field of View = CCD Size / Optical Magnification



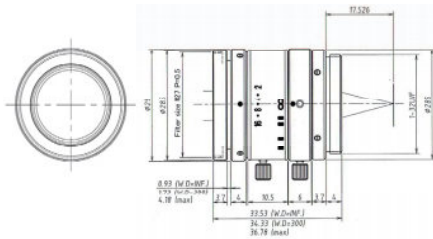
## M1620-MPW2

2/3"

5MP

FIX

MANUAL



|                            |       |                        |       |        |       |       |       |
|----------------------------|-------|------------------------|-------|--------|-------|-------|-------|
| Focal Length               |       | 16mm                   |       |        |       |       |       |
| Max. Aperture Ratio        |       | 1:2.0                  |       |        |       |       |       |
| Max. Image Format          |       | 8.8mm x 6.6mm (φ 11mm) |       |        |       |       |       |
| Operation Range            | Iris  | F2.0 - F16.0           |       |        |       |       |       |
|                            | Focus | 0.2m - Inf.            |       |        |       |       |       |
| Control                    | Iris  | Manual                 |       |        |       |       |       |
|                            | Focus | Manual                 |       |        |       |       |       |
| Object Dimension at M.O.D. |       | 8.8cm x 11.74cm 2/3"   |       |        |       |       |       |
| Angle of View              | D     |                        | 37.7° |        | 30.1° | 28.0° |       |
|                            | H     | 2/3"                   | 30.7° | 1/1.8" | 24.3° | 1/2"  | 22.6° |
|                            | V     |                        | 23.3° |        | 18.5° |       | 17.1° |
| Operating Temperature      |       | -10° C ~ +50° C        |       |        |       |       |       |

|                    |                   |              |        |                |      |               |
|--------------------|-------------------|--------------|--------|----------------|------|---------------|
| Distortion         | 2/3"              | 0.09%(y=5.5) | 1/1.8" | -0.06%(y=4.32) | 1/2" | -0.07%(y=4.0) |
| Back Focal Length  | 14.7mm (WD=300mm) |              |        |                |      |               |
| Flange Back Length | 17.526mm          |              |        |                |      |               |
| Mount              | C-Mount           |              |        |                |      |               |
| Filter Size        | M27.0 P=0.5mm     |              |        |                |      |               |
| Dimensions         | φ 29mm x 33.53mm  |              |        |                |      |               |
| Weight             | 53g               |              |        |                |      |               |

| Working Distance<br>(mm) | Optical Magnification | Extension Ring<br>(mm) | Field of View(mm) |       |        |       |       |       |
|--------------------------|-----------------------|------------------------|-------------------|-------|--------|-------|-------|-------|
|                          |                       |                        | 2/3"              |       | 1/1.8" |       | 1/2"  |       |
|                          |                       |                        | H                 | V     | H      | V     | H     | V     |
| 900                      | -0.018                | -                      | 501.2             | 376.4 | 393.5  | 296.7 | 365.0 | 273.9 |
| 850                      | -0.019                | -                      | 473.8             | 355.8 | 372.0  | 280.5 | 345.1 | 258.9 |
| 800                      | -0.020                | -                      | 446.4             | 335.2 | 350.4  | 264.2 | 325.1 | 243.9 |
| 750                      | -0.021                | -                      | 418.9             | 314.6 | 328.9  | 248.0 | 305.1 | 228.9 |
| 700                      | -0.022                | -                      | 391.5             | 294.0 | 307.4  | 231.7 | 285.1 | 213.9 |
| 650                      | -0.024                | -                      | 364.1             | 273.4 | 285.8  | 215.5 | 265.2 | 198.9 |
| 600                      | -0.026                | -                      | 336.7             | 252.8 | 264.3  | 199.3 | 245.2 | 183.9 |
| 550                      | -0.028                | -                      | 309.3             | 232.2 | 242.8  | 183.0 | 225.2 | 168.9 |
| 500                      | -0.031                | -                      | 281.9             | 211.6 | 221.2  | 166.8 | 205.2 | 153.9 |
| 450                      | -0.035                | -                      | 254.5             | 191.0 | 199.7  | 150.5 | 185.2 | 138.9 |
| 400                      | -0.039                | -                      | 227.1             | 170.4 | 178.2  | 134.3 | 165.3 | 124.0 |
| 350                      | -0.044                | -                      | 199.7             | 149.8 | 156.6  | 118.0 | 145.3 | 109.0 |
| 300                      | -0.0511               | -                      | 172.2             | 129.2 | 135.1  | 101.8 | 125.3 | 94.0  |
| 250                      | -0.061                | -                      | 144.8             | 108.6 | 113.6  | 85.6  | 105.1 | 79.2  |
| 200                      | -0.075                | -                      | 117.4             | 88.0  | 92.0   | 69.3  | 85.3  | 64.0  |
| 150                      | -0.098                | 0.5                    | 90.0              | 67.4  | 70.5   | 53.1  | 65.3  | 49.0  |
| 100                      | -0.142                | 1                      | 62.5              | 46.8  | 48.9   | 36.8  | 45.4  | 34.0  |

Field of View = CCD Size / Optical Magnification

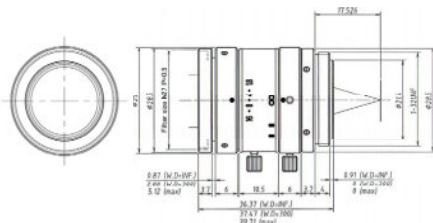
## M2518-MPW2

2/3"

5MP

FIX

MANUAL



|                            |       |                        |       |        |       |      |       |
|----------------------------|-------|------------------------|-------|--------|-------|------|-------|
| Focal Length               |       | 25mm                   |       |        |       |      |       |
| Max. Aperture Ratio        |       | 1:1.8                  |       |        |       |      |       |
| Max. Image Format          |       | 8.8mm x 6.6mm (ϕ 11mm) |       |        |       |      |       |
| Operation Range            | Iris  | F1.8 - F16.0           |       |        |       |      |       |
|                            | Focus | 0.2m - Inf.            |       |        |       |      |       |
| Control                    | Iris  | Manual                 |       |        |       |      |       |
|                            | Focus | Manual                 |       |        |       |      |       |
| Object Dimension at M.O.D. |       | 5.48cm x 7.31cm 2/3"   |       |        |       |      |       |
| Angle of View              | D     |                        | 24.6° |        | 19.5° |      | 18.1° |
|                            | H     | 2/3"                   | 19.9° | 1/1.8" | 15.7° | 1/2" | 14.5° |
|                            | V     |                        | 15.0° |        | 11.8° |      | 10.9° |
| Operating Temperature      |       | -10° C ~ +50° C        |       |        |       |      |       |

|                    |                   |              |        |                |      |               |
|--------------------|-------------------|--------------|--------|----------------|------|---------------|
| Distortion         | 2/3"              | 0.03%(y=5.5) | 1/1.8" | -0.02%(y=4.32) | 1/2" | -0.02%(y=4.0) |
| Back Focal Length  | 13.8mm (WD=300mm) |              |        |                |      |               |
| Flange Back Length | 17.526mm          |              |        |                |      |               |
| Mount              | C-Mount           |              |        |                |      |               |
| Filter Size        | M27.0 P=0.5mm     |              |        |                |      |               |
| Dimensions         | φ 29mm x 36.37mm  |              |        |                |      |               |
| Weight             | 60g               |              |        |                |      |               |

| Working Distance<br>(mm) | Optical Magnification | Extension Ring<br>(mm) | Field of View(mm) |       |        |       |       |       |
|--------------------------|-----------------------|------------------------|-------------------|-------|--------|-------|-------|-------|
|                          |                       |                        | 2/3"              |       | 1/1.8" |       | 1/2"  |       |
|                          |                       |                        | H                 | V     | H      | V     | H     | V     |
| 900                      | -0.028                | -                      | 318.2             | 238.9 | 249.8  | 188.4 | 231.7 | 173.9 |
| 850                      | -0.029                | -                      | 300.7             | 225.8 | 236.0  | 178.0 | 219.0 | 164.3 |
| 800                      | -0.031                | -                      | 283.2             | 212.6 | 222.3  | 167.6 | 206.2 | 154.7 |
| 750                      | -0.033                | -                      | 265.7             | 199.5 | 208.5  | 157.2 | 193.5 | 145.2 |
| 700                      | -0.035                | -                      | 248.2             | 186.3 | 194.8  | 146.9 | 180.7 | 135.6 |
| 650                      | -0.038                | -                      | 230.7             | 173.2 | 181.0  | 136.5 | 168.0 | 126.0 |
| 600                      | -0.041                | -                      | 213.2             | 160.0 | 167.3  | 126.1 | 155.2 | 116.4 |
| 550                      | -0.045                | -                      | 195.7             | 146.9 | 153.6  | 115.8 | 142.5 | 106.9 |
| 500                      | -0.049                | -                      | 178.2             | 133.7 | 139.8  | 105.4 | 129.7 | 97.3  |
| 450                      | -0.055                | -                      | 160.7             | 120.6 | 126.1  | 95.0  | 116.9 | 87.7  |
| 400                      | -0.061                | -                      | 143.2             | 107.4 | 112.3  | 84.7  | 104.2 | 78.1  |
| 350                      | -0.070                | -                      | 125.7             | 94.3  | 98.6   | 74.3  | 91.4  | 68.6  |
| 300                      | -0.081                | -                      | 108.2             | 81.1  | 84.8   | 63.9  | 78.7  | 59.0  |
| 250                      | -0.097                | -                      | 90.7              | 68.0  | 71.1   | 53.5  | 65.9  | 49.4  |
| 200                      | -0.121                | -                      | 73.1              | 54.8  | 57.3   | 43.2  | 53.1  | 39.8  |
| 150                      | -0.159                | 1                      | 55.6              | 41.6  | 43.5   | 32.8  | 40.4  | 30.3  |
| 100                      | -0.233                | 5                      | 38.0              | 28.5  | 29.8   | 22.4  | 27.6  | 20.7  |

Field of View = CCD Size / Optical Magnification

C-MOUNT  
2/3" 5MP

## 5 MEGA PIXEL ULTRA LOW DISTORTION LENS

MACHINE VISION LENS

- Ultra low distortion (optical distortion 0.1% or less)
- Higher relative illumination rate

- Compact design
- Locking set screws for focus and iris

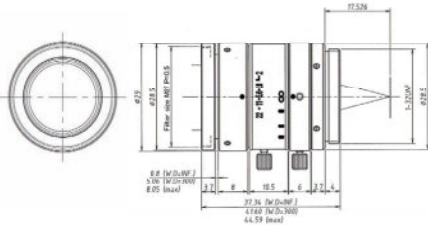
### M3520-MPW2

2/3"

5MP

FIX

MANUAL



|                          |       |                        |       |        |       |      |       |
|--------------------------|-------|------------------------|-------|--------|-------|------|-------|
| Focal Length             |       | 35mm                   |       |        |       |      |       |
| Max. Aperture Ratio      |       | 1:2.0                  |       |        |       |      |       |
| Max. Image Format        |       | 8.8mm x 6.6mm (φ 11mm) |       |        |       |      |       |
| Operation Range          | Iris  | F2.0 - F22.0           |       |        |       |      |       |
|                          | Focus | 0.2m - Inf.            |       |        |       |      |       |
| Control                  | Iris  | Manual                 |       |        |       |      |       |
|                          | Focus | Manual                 |       |        |       |      |       |
| Object Dimension at MOD. |       | 3.48cm x 4.63cm 2/3"   |       |        |       |      |       |
| Angle of View            | D     |                        | 17.8° |        | 14.0° |      | 13.0° |
|                          | H     | 2/3"                   | 14.3° | 1/1.8" | 11.2° | 1/2" | 10.4° |
|                          | V     |                        | 10.7° |        | 8.5°  |      | 7.8°  |
| Operating Temperature    |       | -10°C ~ +50°C          |       |        |       |      |       |

|                    |                    |                       |                    |
|--------------------|--------------------|-----------------------|--------------------|
| Distortion         | 2/3" 0.011%(y=5.5) | 1/1.8" 0.010%(y=4.32) | 1/2" 0.009%(y=4.0) |
| Back Focal Length  | 18.0mm (WD=300mm)  |                       |                    |
| Flange Back Length | 17.526mm           |                       |                    |
| Mount              | C-Mount            |                       |                    |
| Filter Size        | M27.0 P=0.5mm      |                       |                    |
| Dimensions         | φ 29mm x 37.34mm   |                       |                    |
| Weight             | 59g                |                       |                    |

| Working Distance<br>(mm) | Optical Magnification | Extension Ring<br>(mm) | Field of View(mm) |       |        |       |       |       |
|--------------------------|-----------------------|------------------------|-------------------|-------|--------|-------|-------|-------|
|                          |                       |                        | 2/3"              |       | 1/1.8" |       | 1/2"  |       |
|                          |                       |                        | H                 | V     | H      | V     | H     | V     |
| 900                      | -0.040                | -                      | 221.8             | 166.4 | 174.0  | 131.2 | 161.4 | 121.1 |
| 850                      | -0.042                | -                      | 209.3             | 157.0 | 164.2  | 123.8 | 152.3 | 114.2 |
| 800                      | -0.045                | -                      | 196.7             | 147.6 | 154.3  | 116.3 | 143.2 | 107.4 |
| 750                      | -0.048                | -                      | 184.2             | 138.2 | 144.5  | 108.9 | 134.0 | 100.6 |
| 700                      | -0.051                | -                      | 171.7             | 128.8 | 134.7  | 101.5 | 124.9 | 93.7  |
| 650                      | -0.055                | -                      | 159.2             | 119.4 | 124.8  | 94.1  | 115.8 | 86.9  |
| 600                      | -0.060                | -                      | 146.6             | 110.0 | 115.0  | 98.7  | 106.7 | 80.0  |
| 550                      | -0.066                | -                      | 134.1             | 100.6 | 105.2  | 79.3  | 97.6  | 73.2  |
| 500                      | -0.072                | -                      | 121.6             | 91.2  | 95.3   | 71.9  | 88.4  | 66.3  |
| 450                      | -0.081                | -                      | 109.0             | 81.8  | 85.5   | 64.5  | 79.3  | 59.5  |
| 400                      | -0.091                | -                      | 96.5              | 72.4  | 75.7   | 57.0  | 70.2  | 52.7  |
| 350                      | -0.105                | -                      | 84.0              | 63.0  | 65.8   | 49.6  | 61.1  | 45.8  |
| 300                      | -0.123                | -                      | 71.4              | 53.6  | 56.0   | 42.2  | 52.0  | 39.0  |
| 250                      | -0.150                | -                      | 58.9              | 44.2  | 46.2   | 34.8  | 42.8  | 32.1  |
| 200                      | -0.190                | -                      | 46.3              | 34.8  | 36.3   | 27.4  | 33.7  | 25.3  |
| 150                      | -0.261                | 5                      | 33.8              | 25.3  | 26.5   | 20.0  | 24.6  | 18.4  |
| 100                      | -0.417                | 10                     | 21.2              | 15.9  | 16.6   | 12.5  | 15.4  | 11.5  |

Field of View = CCD Size / Optical Magnification

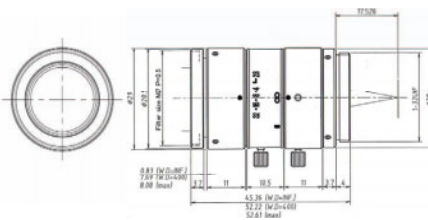
### M5028-MPW2

2/3"

5MP

FIX

MANUAL



|                          |                        |              |       |        |      |
|--------------------------|------------------------|--------------|-------|--------|------|
| Focal Length             | 50mm                   |              |       |        |      |
| Max. Aperture Ratio      | 1:2.8                  |              |       |        |      |
| Max. Image Format        | 8.8mm x 6.6mm (ϕ 11mm) |              |       |        |      |
| Operation Range          | Iris                   | F2.8 - F32.0 |       |        |      |
|                          | Focus                  | 0.4m - Inf.  |       |        |      |
| Control                  | Iris                   | Manual       |       |        |      |
|                          | Focus                  | Manual       |       |        |      |
| Object Dimension at MOD. | 4.78cm x 6.38cm 2/3"   |              |       |        |      |
| Angle of View            | D                      | 12.5°        | 9.9°  | 9.1°   |      |
|                          | H                      | 2/3"         | 10.0° | 1/1.8" | 7.9° |
|                          | V                      |              | 7.5°  | 5.9°   | 1/2" |
| Operating Temperature    | -10° C ~ +50° C        |              |       |        |      |

|                    |                    |                       |                    |
|--------------------|--------------------|-----------------------|--------------------|
| Distortion         | 2/3" 0.027%(y=5.5) | 1/1.8" 0.017%(y=4.32) | 1/2" 0.015%(y=4.0) |
| Back Focal Length  | 27.7mm (WD=400mm)  |                       |                    |
| Flange Back Length | 17.526mm           |                       |                    |
| Mount              | C-Mount            |                       |                    |
| Filter Size        | M27.0 P=0.5mm      |                       |                    |
| Dimensions         | φ 29mm x 45.36mm   |                       |                    |
| Weight             | 69g                |                       |                    |

| Working Distance<br>(mm) | Optical Magnification | Extension Ring<br>(mm) | Field of View(mm) |       |        |      |       |      |
|--------------------------|-----------------------|------------------------|-------------------|-------|--------|------|-------|------|
|                          |                       |                        | 2/3"              |       | 1/1.8" |      | 1/2"  |      |
|                          |                       |                        | H                 | V     | H      | V    | H     | V    |
| 900                      | -0.058                | -                      | 151.7             | 113.8 | 118.9  | 89.6 | 110.3 | 82.7 |
| 850                      | -0.062                | -                      | 142.9             | 107.2 | 112.0  | 84.4 | 103.9 | 77.9 |
| 800                      | -0.066                | -                      | 134.1             | 100.6 | 105.1  | 79.2 | 97.5  | 73.1 |
| 750                      | -0.070                | -                      | 125.3             | 94.0  | 98.2   | 74.0 | 91.1  | 68.3 |
| 700                      | -0.075                | -                      | 116.5             | 87.4  | 91.3   | 68.9 | 84.7  | 63.6 |
| 650                      | -0.082                | -                      | 107.7             | 80.8  | 84.5   | 63.7 | 78.3  | 58.8 |
| 600                      | -0.089                | -                      | 98.9              | 74.2  | 77.6   | 58.5 | 71.9  | 54.0 |
| 550                      | -0.098                | -                      | 90.1              | 67.6  | 70.7   | 53.3 | 65.6  | 49.2 |
| 500                      | -0.108                | -                      | 81.3              | 61.0  | 63.8   | 48.1 | 59.2  | 44.4 |
| 450                      | -0.121                | -                      | 72.6              | 54.4  | 56.9   | 42.9 | 52.8  | 39.6 |
| 400                      | -0.138                | -                      | 63.8              | 47.8  | 50.0   | 37.7 | 46.4  | 34.8 |
| 350                      | -0.160                | 1                      | 55.0              | 41.2  | 43.1   | 32.5 | 40.0  | 30.0 |
| 300                      | -0.191                | 5                      | 46.2              | 34.6  | 36.2   | 27.3 | 33.6  | 25.2 |
| 250                      | -0.235                | 5                      | 37.4              | 28.1  | 29.3   | 22.1 | 27.2  | 20.4 |
| 200                      | -0.308                | 10                     | 28.6              | 21.5  | 22.4   | 16.9 | 20.8  | 15.6 |
| 150                      | -0.445                | 20                     | 19.8              | 14.9  | 15.5   | 11.7 | 14.4  | 10.8 |
| 100                      | -0.801                | 40                     | 11.0              | 8.2   | 8.6    | 6.5  | 8.0   | 6.0  |

Field of View = CCD Size / Optical Magnification



|                            |       |                        |       |        |       |      |       |
|----------------------------|-------|------------------------|-------|--------|-------|------|-------|
| Focal Length               |       | 25mm                   |       |        |       |      |       |
| Max. Aperture Ratio        |       | 1:1.8                  |       |        |       |      |       |
| Max. Image Format          |       | 8.8mm x 6.6mm (φ 11mm) |       |        |       |      |       |
| Operation Range            | Iris  | F1.8 - F16.0           |       |        |       |      |       |
|                            | Focus | 0.15m - Inf.           |       |        |       |      |       |
| Control                    | Iris  | Manual                 |       |        |       |      |       |
|                            | Focus | Manual                 |       |        |       |      |       |
| Object Dimension at M.O.D. |       | 4.10cm x 5.48cm 2/3"   |       |        |       |      |       |
| Angle of View              | D     |                        | 25.4° |        | 20.1° |      | 18.6° |
|                            | H     | 2/3"                   | 20.5° | 1/1.8" | 16.1° | 1/2" | 15.0° |
|                            | V     |                        | 15.4° |        | 12.2° |      | 11.3° |
| Operating Temperature      |       | -10° C ~ +50° C        |       |        |       |      |       |

|                    |                   |              |        |                |      |               |
|--------------------|-------------------|--------------|--------|----------------|------|---------------|
| Distortion         | 2/3"              | 0.03%(γ=5.5) | 1/1.8" | -0.02%(γ=4.32) | 1/2" | -0.02%(γ=4.0) |
| Back Focal Length  | 14.0mm (WD=300mm) |              |        |                |      |               |
| Flange Back Length | 17.526mm          |              |        |                |      |               |
| Mount              | C-Mount           |              |        |                |      |               |
| Filter Size        | M30.5 P=0.5mm     |              |        |                |      |               |
| Dimensions         | φ 35mm x 48.90mm  |              |        |                |      |               |
| Weight             | 102g              |              |        |                |      |               |

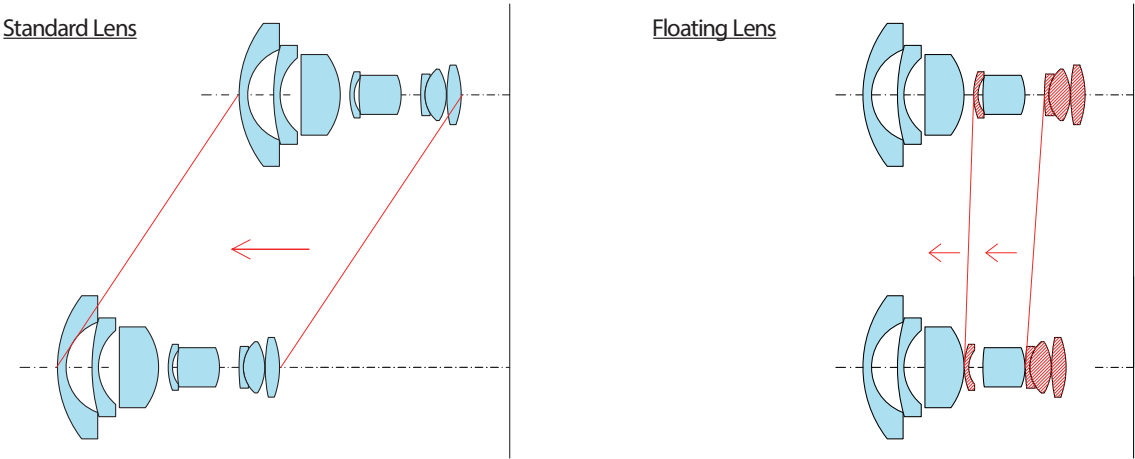
| Working Distance<br>(mm) | Optical Magnification | Extension Ring<br>(mm) | Field of View(mm) |       |        |       |       |       |
|--------------------------|-----------------------|------------------------|-------------------|-------|--------|-------|-------|-------|
|                          |                       |                        | 2/3"              |       | 1/1.8" |       | 1/2"  |       |
|                          |                       |                        | H                 | V     | H      | V     | H     | V     |
| 900                      | -0.027                | -                      | 325.4             | 243.4 | 254.5  | 191.9 | 236.1 | 177.1 |
| 850                      | -0.029                | -                      | 306.2             | 229.9 | 240.3  | 181.2 | 222.9 | 167.3 |
| 800                      | -0.030                | -                      | 288.2             | 216.3 | 226.1  | 170.5 | 209.8 | 157.4 |
| 750                      | -0.033                | -                      | 270.2             | 202.8 | 212.0  | 159.8 | 196.7 | 147.5 |
| 700                      | -0.035                | -                      | 252.1             | 189.3 | 197.8  | 149.2 | 183.5 | 137.7 |
| 650                      | -0.038                | -                      | 234.1             | 175.7 | 183.7  | 138.5 | 170.4 | 127.8 |
| 600                      | -0.041                | -                      | 216.1             | 162.2 | 169.5  | 127.8 | 157.3 | 118.0 |
| 550                      | -0.044                | -                      | 198.1             | 148.7 | 155.4  | 117.1 | 144.2 | 108.1 |
| 500                      | -0.049                | -                      | 180.1             | 135.1 | 141.3  | 106.5 | 131.0 | 98.3  |
| 450                      | -0.054                | -                      | 162.1             | 121.6 | 127.1  | 95.8  | 117.9 | 88.5  |
| 400                      | -0.061                | -                      | 144.1             | 108.1 | 113.0  | 85.2  | 104.8 | 78.6  |
| 350                      | -0.070                | -                      | 126.1             | 94.6  | 98.9   | 74.5  | 91.7  | 68.8  |
| 300                      | -0.081                | -                      | 108.2             | 81.1  | 84.8   | 63.9  | 78.7  | 59.0  |
| 250                      | -0.098                | -                      | 90.3              | 67.7  | 70.8   | 53.3  | 65.6  | 49.2  |
| 200                      | -0.122                | -                      | 72.4              | 54.3  | 56.8   | 42.8  | 52.6  | 39.5  |
| 150                      | -0.161                | -                      | 54.8              | 41.0  | 42.9   | 32.3  | 39.8  | 29.8  |
| 100                      | -0.236                | 5                      | 37.5              | 28.1  | 29.4   | 22.1  | 27.2  | 20.4  |

Field of View = CCD Size / Optical Magnification

### FLOATING

Basically, lens is designed to show the best performance at a certain working distance. Due to this design, a curvature of field\* is caused at other working distances, and the picture deteriorates at the corners. This curvature of field is able to be modified by a method called Floating, which makes several lens element groups move differently and controls aberration. It can provide stable picture quality from short object distances to infinity.

\*Curvature of field: Phenomenon caused by the gap of the focal point between center and corner



C-MOUNT  
1.1" 12MP

# 1.1" 12 MEGAPIXEL C-MOUNT LENS

MACHINE VISION LENS

- 8, 12, 16, 25, 35, 50mm. 6 Lens Series
- Compatible with 1.1" (  $\phi$  17.6mm) Large Format Sensor

- Ultra-High Resolution 12MP
- Compact 1.1" Design (smallest 12MP lens in the industry)

NEW

## V0828-MPY

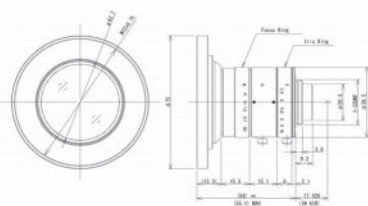
1.1"

12MP

FIX

MANUAL

FLOATING



|                            |       |                              |       |    |       |      |       |
|----------------------------|-------|------------------------------|-------|----|-------|------|-------|
| Focal Length               |       | 8mm                          |       |    |       |      |       |
| Max. Aperture Ratio        |       | 1:2.8                        |       |    |       |      |       |
| Max. Image Format          |       | 14.2mm x 10.4mm ( ϕ 17.6mm)  |       |    |       |      |       |
| Operation Range            | Iris  | F2.8 - F16.0                 |       |    |       |      |       |
|                            | Focus | 0.2m - Inf.                  |       |    |       |      |       |
| Control                    | Iris  | Manual                       |       |    |       |      |       |
|                            | Focus | Manual                       |       |    |       |      |       |
| Object Dimension at M.O.D. |       | 375.6(H)mm x 273.3(V)mm 1.1" |       |    |       |      |       |
| Angle of View              | D     |                              | 93.9° |    | 89.3° |      | 69.0° |
|                            | H     | 1.1"                         | 83.0° | 1" | 77.3° | 2/3" | 57.3° |
|                            | V     |                              | 66.0° |    | 61.7° |      | 44.2° |
| Operating Temperature      |       | -10°C ~ +50°C                |       |    |       |      |       |

|                    |                             |              |    |              |      |              |
|--------------------|-----------------------------|--------------|----|--------------|------|--------------|
| Distortion         | 1.1"                        | -0.6%(y=8.8) | 1" | -1.7%(y=8.0) | 2/3" | -2.8%(y=5.5) |
| Back Focal Length  | 8.6mm                       |              |    |              |      |              |
| Flange Back Length | 17.526mm                    |              |    |              |      |              |
| Mount              | C-Mount                     |              |    |              |      |              |
| Filter Size        | M72 P=0.75mm (with VM0811)* |              |    |              |      |              |
|                    | M67 P=0.75mm (with VM0810)* |              |    |              |      |              |
| Dimensions         | $\phi$ 75mm x 54mm          |              |    |              |      |              |
| Weight             | 155g                        |              |    |              |      |              |

\*There is no filter mount on the top of the lens.  
For using filters, please attach either VM0811 or VM0810.  
For more detail, please refer to P22.

| Working Distance<br>(mm) | Optical Magnification | Extension Ring<br>(mm) | Field of View(mm) |        |        |        |        |       |
|--------------------------|-----------------------|------------------------|-------------------|--------|--------|--------|--------|-------|
|                          |                       |                        | 1.1"              |        | 1"     |        | 2/3"   |       |
|                          |                       |                        | H                 | V      | H      | V      | H      | V     |
| 1000                     | 0.008                 | -                      | 1790.8            | 1310.2 | 1617.6 | 1206.7 | 1103.1 | 820.5 |
| 950                      | 0.009                 | -                      | 1702.4            | 1245.4 | 1537.7 | 1147.0 | 1048.6 | 780.0 |
| 900                      | 0.009                 | -                      | 1614.2            | 1180.9 | 1458.0 | 1087.5 | 994.2  | 739.5 |
| 850                      | 0.010                 | -                      | 1525.9            | 1116.2 | 1378.2 | 1027.9 | 939.7  | 699.0 |
| 800                      | 0.010                 | -                      | 1437.5            | 1051.4 | 1298.3 | 968.3  | 885.2  | 658.4 |
| 750                      | 0.011                 | -                      | 1348.8            | 986.4  | 1218.0 | 908.3  | 830.4  | 617.6 |
| 700                      | 0.012                 | -                      | 1260.1            | 921.4  | 1137.9 | 848.5  | 775.7  | 576.9 |
| 650                      | 0.013                 | -                      | 1172.0            | 856.8  | 1058.2 | 789.0  | 721.3  | 536.5 |
| 600                      | 0.014                 | -                      | 1083.5            | 792.0  | 978.3  | 729.3  | 666.7  | 495.9 |
| 550                      | 0.015                 | -                      | 995.2             | 727.3  | 898.5  | 669.7  | 612.2  | 455.3 |
| 500                      | 0.016                 | -                      | 906.4             | 662.2  | 818.2  | 609.8  | 557.4  | 414.6 |
| 450                      | 0.018                 | -                      | 817.8             | 597.3  | 738.1  | 550.0  | 502.8  | 373.9 |
| 400                      | 0.020                 | -                      | 729.5             | 532.6  | 658.3  | 490.4  | 448.3  | 333.3 |
| 350                      | 0.023                 | -                      | 641.0             | 467.7  | 578.3  | 430.7  | 393.6  | 292.7 |
| 300                      | 0.027                 | -                      | 552.1             | 402.6  | 497.9  | 370.6  | 338.8  | 251.9 |
| 250                      | 0.032                 | -                      | 463.7             | 337.9  | 418.0  | 311.0  | 284.3  | 211.3 |
| 200                      | 0.039                 | -                      | 375.6             | 273.3  | 338.4  | 251.6  | 229.9  | 170.9 |
| 150                      | 0.051                 | 0.2                    | 287.1             | 208.5  | 258.4  | 191.9  | 175.3  | 130.3 |
| 100                      | 0.075                 | 0.2                    | 198.5             | 143.7  | 178.4  | 132.2  | 120.8  | 89.7  |

Fiel of View = CCD Size / Optical Magnification

NEW

## V1228-MPY

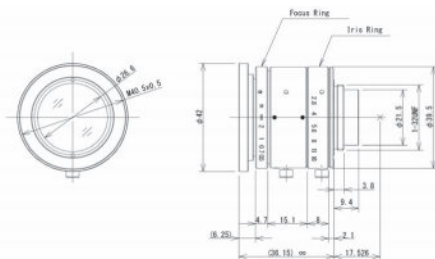
1.1"

12MP

FIX

MANUAL

FLOATING



|                            |       |                              |       |    |       |      |       |
|----------------------------|-------|------------------------------|-------|----|-------|------|-------|
| Focal Length               |       | 12mm                         |       |    |       |      |       |
| Max. Aperture Ratio        |       | 1:2.8                        |       |    |       |      |       |
| Max. Image Format          |       | 14.2mm x 10.4mm ( ϕ 17.6mm)  |       |    |       |      |       |
| Operation Range            | Iris  | F2.8 - F16.0                 |       |    |       |      |       |
|                            | Focus | 0.3m - Inf.                  |       |    |       |      |       |
| Control                    | Iris  | Manual                       |       |    |       |      |       |
|                            | Focus | Manual                       |       |    |       |      |       |
| Object Dimension at M.O.D. |       | 351.6(H)mm x 257.0(V)mm 1.1" |       |    |       |      |       |
| Angle of View              | D     |                              | 71.1° |    | 66.4° |      | 48.6° |
|                            | H     | 1.1"                         | 60.5° | 1" | 55.5° | 2/3" | 39.6° |
|                            | V     |                              | 46.2° |    | 42.9° |      | 30.1° |
| Operating Temperature      |       | -10°C ~ +50°C                |       |    |       |      |       |

|                    |                        |              |    |              |      |              |
|--------------------|------------------------|--------------|----|--------------|------|--------------|
| Distortion         | 1.1"                   | -0.5%(y=8.8) | 1" | -1.0%(y=8.0) | 2/3" | -1.4%(y=5.5) |
| Back Focal Length  | 8.4mm                  |              |    |              |      |              |
| Flange Back Length | 17.526mm               |              |    |              |      |              |
| Mount              | C-Mount                |              |    |              |      |              |
| Filter Size        | M40.5 P=0.5mm          |              |    |              |      |              |
| Dimensions         | $\phi$ 42.0mm x 36.1mm |              |    |              |      |              |
| Weight             | 98g                    |              |    |              |      |              |

| Working Distance<br>(mm) | Optical Magnification | Extension Ring<br>(mm) | Field of View(mm) |       |        |       |       |       |
|--------------------------|-----------------------|------------------------|-------------------|-------|--------|-------|-------|-------|
|                          |                       |                        | 1.1"              |       | 1"     |       | 2/3"  |       |
|                          |                       |                        | H                 | V     | H      | V     | H     | V     |
| 1000                     | 0.012                 | -                      | 1167.9            | 854.2 | 1053.4 | 787.5 | 720.9 | 538.6 |
| 950                      | 0.013                 | -                      | 1109.5            | 811.4 | 1000.7 | 748.1 | 684.8 | 511.6 |
| 900                      | 0.014                 | -                      | 1051.2            | 768.8 | 948.2  | 708.8 | 648.9 | 484.8 |
| 850                      | 0.015                 | -                      | 992.9             | 726.1 | 895.5  | 669.4 | 612.8 | 457.8 |
| 800                      | 0.015                 | -                      | 934.6             | 683.4 | 842.9  | 630.1 | 576.8 | 430.9 |
| 750                      | 0.016                 | -                      | 876.4             | 640.9 | 790.4  | 590.9 | 540.9 | 404.1 |
| 700                      | 0.018                 | -                      | 818.0             | 598.1 | 737.7  | 551.5 | 504.8 | 377.1 |
| 650                      | 0.019                 | -                      | 759.7             | 555.5 | 685.1  | 512.2 | 468.8 | 350.3 |
| 600                      | 0.021                 | -                      | 701.5             | 512.9 | 632.7  | 472.9 | 432.9 | 323.4 |
| 550                      | 0.022                 | -                      | 643.0             | 470.2 | 579.9  | 433.5 | 396.8 | 296.5 |
| 500                      | 0.025                 | -                      | 584.7             | 427.5 | 527.3  | 394.2 | 360.8 | 269.6 |
| 450                      | 0.027                 | -                      | 526.5             | 384.9 | 474.8  | 354.9 | 324.9 | 242.7 |
| 400                      | 0.031                 | -                      | 468.2             | 342.3 | 422.2  | 315.6 | 288.9 | 215.8 |
| 350                      | 0.035                 | -                      | 409.9             | 299.7 | 369.6  | 276.3 | 252.9 | 189.0 |
| 300                      | 0.041                 | -                      | 351.6             | 257.0 | 317.0  | 237.0 | 216.9 | 162.1 |
| 250                      | 0.048                 | 0.5                    | 303.1             | 221.0 | 273.0  | 203.7 | 186.4 | 139.2 |
| 200                      | 0.060                 | 0.5                    | 242.7             | 177.0 | 218.6  | 163.1 | 149.3 | 111.5 |
| 150                      | 0.079                 | 0.5                    | 182.5             | 133.1 | 164.3  | 122.6 | 112.2 | 83.8  |
| 100                      | 0.115                 | 1.0                    | 126.3             | 91.9  | 113.6  | 84.7  | 77.5  | 57.8  |

Fiel of View = CCD Size / Optical Magnification



NEW

## V1628-MPY

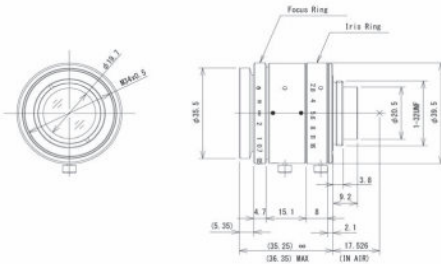
1.1"

12MP

FIX

MANUAL

FLOATING



|                            |       |                                |       |    |       |      |       |
|----------------------------|-------|--------------------------------|-------|----|-------|------|-------|
| Focal Length               |       | 16mm                           |       |    |       |      |       |
| Max. Aperture Ratio        |       | 1:2.8                          |       |    |       |      |       |
| Max. Image Format          |       | 14.2mm x 10.4mm ( ϕ 17.6mm)    |       |    |       |      |       |
| Operation Range            | Iris  | F2.8 - F16.0                   |       |    |       |      |       |
|                            | Focus | 0.3m - Inf.                    |       |    |       |      |       |
| Control                    | Iris  | Manual                         |       |    |       |      |       |
|                            | Focus | Manual                         |       |    |       |      |       |
| Object Dimension at M.O.D. |       | 264.6(H)/mm x 193.8(V)/mm 1.1" |       |    |       |      |       |
| Angle of View              | D     |                                | 57.9° |    | 53.4° |      | 38.2° |
|                            | H     | 1.1 "                          | 48.2° | 1" | 43.9° | 2/3" | 30.9° |
|                            | V     |                                | 36.2° |    | 33.6° |      | 23.4° |
| Operating Temperature      |       | -10°C ~ +50°C                  |       |    |       |      |       |

|                    |                        |                 |                   |
|--------------------|------------------------|-----------------|-------------------|
| Distortion         | 1.1" -0.5%(y=8.8)      | 1" -0.6%(y=8.0) | 2/3" -0.6%(y=5.5) |
| Back Focal Length  | 9.4mm                  |                 |                   |
| Flange Back Length | 17.526mm               |                 |                   |
| Mount              | C-Mount                |                 |                   |
| Filter Size        | M34.0 P=0.5mm          |                 |                   |
| Dimensions         | $\phi$ 39.5mm x 35.2mm |                 |                   |
| Weight             | 91g                    |                 |                   |

| Working Distance<br>(mm) | Optical Magnification | Extension Ring<br>(mm) | Field of View(mm) |       |       |       |       |       |
|--------------------------|-----------------------|------------------------|-------------------|-------|-------|-------|-------|-------|
|                          |                       |                        | 1.1"              |       | 1"    |       | 2/3"  |       |
|                          |                       |                        | H                 | V     | H     | V     | H     | V     |
| 1000                     | 0.016                 | -                      | 890.1             | 651.4 | 802.4 | 601.0 | 550.7 | 412.4 |
| 950                      | 0.017                 | -                      | 845.4             | 618.7 | 762.1 | 570.9 | 523.0 | 391.7 |
| 900                      | 0.018                 | -                      | 800.7             | 586.0 | 721.8 | 540.7 | 495.4 | 371.0 |
| 850                      | 0.019                 | -                      | 756.2             | 553.5 | 681.7 | 510.7 | 467.9 | 350.5 |
| 800                      | 0.020                 | -                      | 711.5             | 520.8 | 641.5 | 480.5 | 440.3 | 329.8 |
| 750                      | 0.021                 | -                      | 666.9             | 488.1 | 601.2 | 450.4 | 412.7 | 309.1 |
| 700                      | 0.023                 | -                      | 622.2             | 455.4 | 560.9 | 420.2 | 385.0 | 288.4 |
| 650                      | 0.025                 | -                      | 577.4             | 422.7 | 520.6 | 390.0 | 357.4 | 267.7 |
| 600                      | 0.027                 | -                      | 532.7             | 390.0 | 480.3 | 359.9 | 329.7 | 247.0 |
| 550                      | 0.029                 | -                      | 488.1             | 357.3 | 440.0 | 329.7 | 302.1 | 226.3 |
| 500                      | 0.032                 | -                      | 443.4             | 324.6 | 399.8 | 299.6 | 274.5 | 205.6 |
| 450                      | 0.036                 | -                      | 398.7             | 291.9 | 359.5 | 269.4 | 246.9 | 184.9 |
| 400                      | 0.040                 | -                      | 353.9             | 259.2 | 319.2 | 239.2 | 219.2 | 164.2 |
| 350                      | 0.046                 | -                      | 309.3             | 226.5 | 278.9 | 209.1 | 191.6 | 143.5 |
| 300                      | 0.054                 | -                      | 264.6             | 193.8 | 238.6 | 178.9 | 163.9 | 122.8 |
| 250                      | 0.063                 | 1.0                    | 227.8             | 166.3 | 205.1 | 153.3 | 140.5 | 105.1 |
| 200                      | 0.079                 | 1.0                    | 181.4             | 132.5 | 163.4 | 122.2 | 111.9 | 83.8  |
| 150                      | 0.106                 | 1.0                    | 135.1             | 98.8  | 121.7 | 91.1  | 83.5  | 62.5  |
| 100                      | 0.156                 | 2.0                    | 92.1              | 67.2  | 82.9  | 61.9  | 56.7  | 42.5  |

Fiel of View = CCD Size / Optical Magnification

NEW

## V2528-MPY

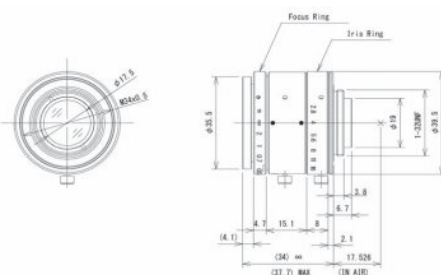
1.1"

12MP

FIX

MANUAL

FLOATING



|                            |                             |                              |          |            |  |
|----------------------------|-----------------------------|------------------------------|----------|------------|--|
| Focal Length               | 25mm                        |                              |          |            |  |
| Max. Aperture Ratio        | 1:2.8                       |                              |          |            |  |
| Max. Image Format          | 14.2mm x 10.4mm ( ϕ 17.6mm) |                              |          |            |  |
| Operation Range            | Iris                        | F2.8 - F16.0                 |          |            |  |
|                            | Focus                       | 0.3m - Inf.                  |          |            |  |
| Control                    | Iris                        | Manual                       |          |            |  |
|                            | Focus                       | Manual                       |          |            |  |
| Object Dimension at M.O.D. |                             | 158.7(H)mm x 116.2(V)mm 1.1" |          |            |  |
| Angle of View              | D                           | 38.7°                        | 35.4°    | 24.8°      |  |
|                            | H                           | 1.1" 31.7°                   | 1" 28.7° | 2/3" 20.0° |  |
|                            | V                           | 23.5°                        | 21.7°    | 15.0°      |  |
| Operating Temperature      |                             | -10°C ~ +50°C                |          |            |  |

|                    |                      |                |                  |
|--------------------|----------------------|----------------|------------------|
| Distortion         | 1.1" 0.3%(y=8.8)     | 1" 0.2%(y=8.0) | 2/3" 0.1%(y=5.5) |
| Back Focal Length  | 11.3mm               |                |                  |
| Flange Back Length | 17.526mm             |                |                  |
| Mount              | C-Mount              |                |                  |
| Filter Size        | M34.0 P=0.5mm        |                |                  |
| Dimensions         | $\phi$ 39.5mm x 34mm |                |                  |
| Weight             | 78g                  |                |                  |

| Working Distance<br>(mm) | Optical Magnification | Extension Ring<br>(mm) | Field of View(mm) |       |       |       |       |       |
|--------------------------|-----------------------|------------------------|-------------------|-------|-------|-------|-------|-------|
|                          |                       |                        | 1.1"              |       | 1"    |       | 2/3"  |       |
|                          |                       |                        | H                 | V     | H     | V     | H     | V     |
| 1000                     | 0.026                 | -                      | 555.5             | 407.0 | 500.8 | 375.7 | 344.4 | 258.3 |
| 950                      | 0.027                 | -                      | 527.3             | 386.3 | 475.4 | 356.6 | 326.9 | 245.2 |
| 900                      | 0.028                 | -                      | 499.0             | 365.6 | 449.9 | 337.5 | 309.3 | 232.0 |
| 850                      | 0.030                 | -                      | 470.7             | 344.8 | 424.4 | 318.3 | 291.8 | 218.9 |
| 800                      | 0.032                 | -                      | 442.4             | 324.1 | 398.8 | 299.1 | 274.2 | 205.7 |
| 750                      | 0.034                 | -                      | 414.1             | 303.3 | 373.3 | 280.0 | 256.6 | 192.5 |
| 700                      | 0.037                 | -                      | 385.7             | 282.5 | 347.7 | 260.8 | 239.0 | 179.3 |
| 650                      | 0.040                 | -                      | 357.4             | 261.7 | 322.1 | 241.6 | 221.5 | 166.1 |
| 600                      | 0.043                 | -                      | 329.0             | 240.9 | 296.6 | 222.4 | 203.9 | 152.9 |
| 550                      | 0.047                 | -                      | 300.7             | 220.2 | 271.0 | 203.2 | 186.3 | 139.7 |
| 500                      | 0.052                 | -                      | 272.2             | 199.3 | 245.3 | 184.0 | 168.6 | 126.5 |
| 450                      | 0.058                 | -                      | 243.9             | 178.5 | 219.8 | 164.8 | 151.1 | 113.3 |
| 400                      | 0.066                 | -                      | 215.5             | 157.7 | 194.2 | 145.6 | 133.4 | 100.1 |
| 350                      | 0.076                 | -                      | 187.1             | 136.9 | 168.6 | 126.4 | 115.8 | 86.9  |
| 300                      | 0.090                 | -                      | 158.7             | 116.2 | 143.0 | 107.2 | 98.3  | 73.7  |
| 250                      | 0.108                 | 0.5                    | 131.9             | 96.5  | 118.8 | 89.0  | 81.6  | 61.2  |
| 200                      | 0.135                 | 1.5                    | 105.6             | 77.2  | 95.1  | 71.3  | 65.3  | 48.9  |
| 150                      | 0.183                 | 2.5                    | 78.0              | 57.0  | 70.3  | 52.6  | 48.2  | 36.1  |
| 100                      | 0.281                 | 5.0                    | 50.9              | 37.2  | 45.8  | 34.3  | 31.4  | 23.5  |

Fiel of View = CCD Size / Optical Magnification

C-MOUNT  
1.1" 12MP

# 1.1" 12 MEGAPIXEL C-MOUNT LENS

MACHINE VISION LENS

- 8, 12, 16, 25, 35, 50mm. 6 Lens Series
- Compatible with 1.1" (  $\phi$  17.6mm) Large Format Sensor

- Ultra-High Resolution 12MP
- Compact 1.1" Design (smallest 12MP lens in the industry)

NEW

## V3528-MPY

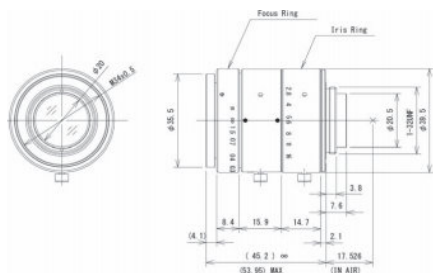
1.1"

12MP

FIX

MANUAL

FLOATING



|                            |                                  |              |
|----------------------------|----------------------------------|--------------|
| Focal Length               | 35mm                             |              |
| Max. Aperture Ratio        | 1:2.8                            |              |
| Max. Image Format          | 14.2mm x 10.4mm ( $\phi$ 17.6mm) |              |
| Operation Range            | Iris                             | F2.8 - F16.0 |
|                            | Focus                            | 0.3m - Inf.  |
| Control                    | Iris                             | Manual       |
|                            | Focus                            | Manual       |
| Object Dimension at M.O.D. | 109.3(H)mm x 80.1(V)mm 1.1"      |              |
| Angle of View              | D                                | 28.2°        |
|                            | H                                | 22.9°        |
|                            | V                                | 16.9°        |
| Operating Temperature      | -10°C ~ +50°C                    |              |

|                    |                        |             |    |             |      |             |
|--------------------|------------------------|-------------|----|-------------|------|-------------|
| Distortion         | 1.1"                   | 0.1%(y=8.8) | 1" | 0.0%(y=8.0) | 2/3" | 0.0%(y=5.5) |
| Back Focal Length  | 11.7mm                 |             |    |             |      |             |
| Flange Back Length | 17.526mm               |             |    |             |      |             |
| Mount              | C-Mount                |             |    |             |      |             |
| Filter Size        | M34.0 P=0.5mm          |             |    |             |      |             |
| Dimensions         | $\phi$ 39.5mm x 45.1mm |             |    |             |      |             |
| Weight             | 103g                   |             |    |             |      |             |

| Working Distance<br>(mm) | Optical Magnification | Extension Ring<br>(mm) | Field of View(mm) |       |       |       |       |       |
|--------------------------|-----------------------|------------------------|-------------------|-------|-------|-------|-------|-------|
|                          |                       |                        | 1.1"              |       | 1"    |       | 2/3"  |       |
|                          |                       |                        | H                 | V     | H     | V     | H     | V     |
| 1000                     | 0.036                 | -                      | 393.4             | 288.2 | 354.6 | 266.0 | 243.9 | 182.9 |
| 950                      | 0.038                 | -                      | 373.0             | 273.2 | 336.2 | 252.2 | 231.2 | 173.4 |
| 900                      | 0.040                 | -                      | 352.7             | 258.4 | 317.9 | 238.5 | 218.6 | 164.0 |
| 850                      | 0.043                 | -                      | 332.4             | 243.5 | 299.6 | 224.7 | 206.0 | 154.5 |
| 800                      | 0.046                 | -                      | 312.1             | 228.6 | 281.3 | 211.0 | 193.5 | 145.1 |
| 750                      | 0.049                 | -                      | 291.8             | 213.8 | 263.1 | 197.3 | 180.9 | 135.7 |
| 700                      | 0.052                 | -                      | 271.6             | 198.9 | 244.8 | 183.6 | 168.3 | 126.3 |
| 650                      | 0.057                 | -                      | 251.3             | 184.1 | 226.5 | 169.9 | 155.8 | 116.8 |
| 600                      | 0.061                 | -                      | 231.0             | 169.2 | 208.2 | 156.2 | 143.2 | 107.4 |
| 550                      | 0.067                 | -                      | 210.7             | 154.3 | 189.9 | 142.5 | 130.6 | 98.0  |
| 500                      | 0.075                 | -                      | 190.4             | 139.5 | 171.6 | 128.8 | 118.0 | 88.6  |
| 450                      | 0.083                 | -                      | 170.1             | 124.6 | 153.4 | 115.1 | 105.5 | 79.1  |
| 400                      | 0.095                 | -                      | 149.8             | 109.8 | 135.1 | 101.3 | 92.9  | 69.7  |
| 350                      | 0.110                 | -                      | 129.5             | 94.9  | 116.8 | 87.6  | 80.3  | 60.3  |
| 300                      | 0.130                 | -                      | 109.3             | 80.1  | 98.5  | 73.9  | 67.8  | 50.8  |
| 250                      | 0.157                 | 1.5                    | 90.4              | 66.2  | 81.5  | 61.1  | 56.0  | 42.0  |
| 200                      | 0.201                 | 3.0                    | 70.9              | 51.9  | 63.9  | 47.9  | 43.9  | 32.9  |
| 150                      | 0.277                 | 6.0                    | 51.6              | 37.7  | 46.5  | 34.8  | 31.9  | 23.9  |
| 100                      | 0.435                 | 15.0                   | 32.9              | 24.0  | 29.6  | 22.2  | 20.3  | 15.2  |

Fiel of View = CCD Size / Optical Magnification

NEW

## V5028-MPY

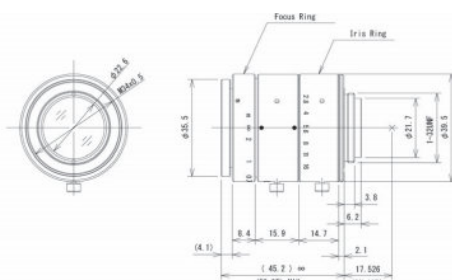
1.1"

12MP

FIX

MANUAL

FLOATING



|                            |                                  |              |
|----------------------------|----------------------------------|--------------|
| Focal Length               | 50mm                             |              |
| Max. Aperture Ratio        | 1:2.8                            |              |
| Max. Image Format          | 14.2mm x 10.4mm ( $\phi$ 17.6mm) |              |
| Operation Range            | Iris                             | F2.8 - F16.0 |
|                            | Focus                            | 0.5m - Inf.  |
| Control                    | Iris                             | Manual       |
|                            | Focus                            | Manual       |
| Object Dimension at M.O.D. | 115.9(H)mm x 84.8(V)mm 1.1"      |              |
| Angle of View              | D                                | 20.0°        |
|                            | H                                | 16.2°        |
|                            | V                                | 11.9°        |
| Operating Temperature      | -10°C ~ +50°C                    |              |

|                    |                        |             |    |             |      |             |
|--------------------|------------------------|-------------|----|-------------|------|-------------|
| Distortion         | 1.1"                   | 0.1%(y=8.8) | 1" | 0.1%(y=8.0) | 2/3" | 0.1%(y=5.5) |
| Back Focal Length  | 11.9mm                 |             |    |             |      |             |
| Flange Back Length | 17.526mm               |             |    |             |      |             |
| Mount              | C-Mount                |             |    |             |      |             |
| Filter Size        | M34.0 P=0.5mm          |             |    |             |      |             |
| Dimensions         | $\phi$ 39.5mm x 45.1mm |             |    |             |      |             |
| Weight             | 107g                   |             |    |             |      |             |

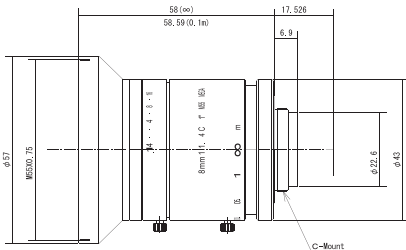
| Working Distance<br>(mm) | Optical Magnification | Extension Ring<br>(mm) | Field of View(mm) |       |       |       |       |       |
|--------------------------|-----------------------|------------------------|-------------------|-------|-------|-------|-------|-------|
|                          |                       |                        | 1.1"              |       | 1"    |       | 2/3"  |       |
|                          |                       |                        | H                 | V     | H     | V     | H     | V     |
| 1000                     | 0.055                 | -                      | 257.9             | 188.9 | 232.5 | 174.4 | 159.8 | 119.9 |
| 950                      | 0.058                 | -                      | 243.7             | 178.5 | 219.7 | 164.7 | 151.0 | 113.3 |
| 900                      | 0.062                 | -                      | 229.5             | 168.1 | 206.9 | 155.1 | 142.2 | 106.7 |
| 850                      | 0.066                 | -                      | 215.3             | 157.6 | 194.0 | 145.5 | 133.4 | 100.0 |
| 800                      | 0.071                 | -                      | 201.1             | 147.2 | 181.2 | 135.9 | 124.6 | 93.4  |
| 750                      | 0.076                 | -                      | 186.9             | 136.8 | 168.4 | 126.3 | 115.8 | 86.8  |
| 700                      | 0.082                 | -                      | 172.7             | 126.4 | 155.6 | 116.7 | 107.0 | 80.2  |
| 650                      | 0.090                 | -                      | 158.5             | 116.0 | 142.8 | 107.1 | 98.2  | 73.6  |
| 600                      | 0.099                 | -                      | 144.2             | 105.6 | 130.0 | 97.5  | 89.4  | 67.0  |
| 550                      | 0.109                 | -                      | 130.0             | 95.2  | 117.2 | 87.9  | 80.6  | 60.4  |
| 500                      | 0.123                 | -                      | 115.9             | 84.8  | 104.4 | 78.3  | 71.8  | 53.8  |
| 450                      | 0.138                 | 1.0                    | 103.1             | 75.4  | 92.9  | 69.6  | 63.8  | 47.9  |
| 400                      | 0.158                 | 2.0                    | 89.9              | 65.8  | 81.0  | 60.7  | 55.7  | 41.7  |
| 350                      | 0.181                 | 5.0                    | 78.5              | 57.4  | 70.7  | 53.0  | 48.6  | 36.4  |
| 300                      | 0.222                 | 6.0                    | 64.2              | 47.0  | 57.8  | 43.3  | 39.7  | 29.8  |
| 250                      | 0.276                 | 10.0                   | 51.7              | 37.8  | 46.6  | 34.9  | 32.0  | 24.0  |
| 200                      | 0.373                 | 15.0                   | 38.2              | 27.9  | 34.4  | 25.8  | 23.6  | 17.7  |
| 150                      | 0.583                 | 25.0                   | 24.5              | 17.9  | 22.1  | 16.5  | 15.1  | 11.3  |
| 100                      | 1.255                 | 61.5                   | 11.3              | 8.3   | 10.2  | 7.7   | 7.0   | 5.3   |

Fiel of View = CCD Size / Optical Magnification

C-MOUNT  
1" 2MP

**NEW**

## MANUAL

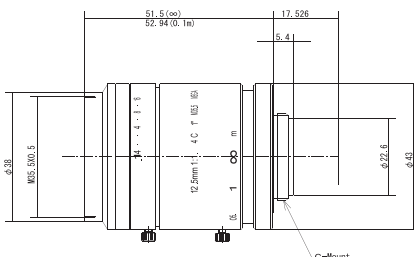


|                    |                |                |        |                |      |                |
|--------------------|----------------|----------------|--------|----------------|------|----------------|
| Distortion         | 1"             | -7.07%(y=-8.0) | 1/1.2" | -7.30%(y=-6.7) | 2/3" | -6.03%(y=-5.5) |
| Back Focal Length  | 11.65mm        |                |        |                |      |                |
| Flange Back Length | 17.526mm       |                |        |                |      |                |
| Mount              | C-Mount        |                |        |                |      |                |
| Filter Size        | M55.0 P=0.75mm |                |        |                |      |                |
| Dimensions         | φ 57mm x 58mm  |                |        |                |      |                |
| Weight             | 250g           |                |        |                |      |                |

$$\text{Field of View} = \text{CCD Size} / \text{Optical Magnification}$$

**NEW**

## MANUAL



|                    |                   |                      |                     |
|--------------------|-------------------|----------------------|---------------------|
| Distortion         | 1" -5.93%(y=-8.0) | 1/1.2" -4.9%(y=-6.7) | 2/3" -3.63%(y=-5.5) |
| Back Focal Length  | 12.55mm           |                      |                     |
| Flange Back Length | 17.526mm          |                      |                     |
| Mount              | C-Mount           |                      |                     |
| Filter Size        | M35.5 P=0.5mm     |                      |                     |
| Dimensions         | φ 38mm x 51.5mm   |                      |                     |
| Weight             | 175g              |                      |                     |

$$\text{Field of View} = \text{CCD Size} / \text{Optical Magnification}$$

## MACHINE VISION LENS

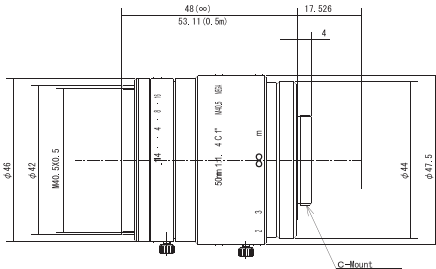


C-MOUNT  
1" 2MP

- 8, 12, 16, 25, 50mm. 5 Lens Series
- Compatible with 1" (φ 16mm) Large Format Sensor
- High Resolution 2 Megapixel

**NEW**

# V5014-MP



|                            |       |                               |       |        |       |      |      |
|----------------------------|-------|-------------------------------|-------|--------|-------|------|------|
| Focal Length               |       | 50mm                          |       |        |       |      |      |
| Max. Aperture Ratio        |       | 1:1.4                         |       |        |       |      |      |
| Max. Image Format          |       | 12.8mm x 9.6mm ( $\phi$ 16mm) |       |        |       |      |      |
| Operation Range            | Iris  | F1.4 - F16.0                  |       |        |       |      |      |
|                            | Focus | 0.5m - Inf.                   |       |        |       |      |      |
| Control                    | Iris  | Manual                        |       |        |       |      |      |
|                            | Focus | Manual                        |       |        |       |      |      |
| Object Dimension at M.O.D. |       | 12.6cmx9.4cm 1"               |       |        |       |      |      |
| Angle of View              | D     |                               | 18.0° |        | 15.1° |      | 9.1° |
|                            | H     | 1"                            | 14.5° | 1/1.2" | 12.8° | 2/3" | 7.3° |
|                            | V     |                               | 10.9° |        | 8.1°  |      | 5.5° |
| Operating Temperature      |       | -10°C ~ +50°C                 |       |        |       |      |      |

|                    |               |               |        |              |      |               |
|--------------------|---------------|---------------|--------|--------------|------|---------------|
| Distortion         | 1"            | 0.82%(y=-8.0) | 1/1.2" | 0.7%(y=-6.7) | 2/3" | 0.51%(y=-5.5) |
| Back Focal Length  | 14.55mm       |               |        |              |      |               |
| Flange Back Length | 17.526mm      |               |        |              |      |               |
| Mount              | C-Mount       |               |        |              |      |               |
| Filter Size        | M40.5 P=0.5mm |               |        |              |      |               |
| Dimensions         | ϕ 46mm x 48mm |               |        |              |      |               |
| Weight             | 200g          |               |        |              |      |               |

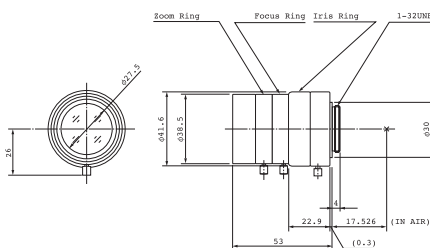
| Working Distance | Optical Magnification | Extension Ring | Field of View(mm) |       |        |       |       |       |
|------------------|-----------------------|----------------|-------------------|-------|--------|-------|-------|-------|
|                  |                       |                | 1"                |       | 1/1.2" |       | 2/3"  |       |
|                  |                       |                | H                 | V     | H      | V     | H     | V     |
| 1000             | 0.051                 | -              | 251.5             | 188.2 | 222.1  | 139.5 | 172.9 | 129.7 |
| 950              | 0.054                 | -              | 239.0             | 178.8 | 211.0  | 132.6 | 164.3 | 123.2 |
| 900              | 0.057                 | -              | 226.4             | 169.4 | 199.9  | 125.6 | 155.6 | 116.7 |
| 850              | 0.060                 | -              | 213.8             | 160.0 | 188.8  | 118.6 | 147.0 | 110.2 |
| 800              | 0.064                 | -              | 201.2             | 150.6 | 177.7  | 111.6 | 138.4 | 103.8 |
| 750              | 0.068                 | -              | 188.7             | 141.2 | 166.6  | 104.7 | 129.7 | 97.3  |
| 700              | 0.073                 | -              | 176.1             | 131.8 | 155.5  | 97.7  | 121.1 | 90.8  |
| 650              | 0.078                 | -              | 163.5             | 122.3 | 144.3  | 90.7  | 112.4 | 84.3  |
| 600              | 0.085                 | -              | 150.9             | 112.9 | 133.2  | 83.7  | 103.8 | 77.8  |
| 550              | 0.093                 | -              | 138.3             | 103.5 | 122.1  | 76.7  | 95.1  | 71.3  |
| 500              | 0.102                 | -              | 125.8             | 94.1  | 110.9  | 69.5  | 86.2  | 64.2  |
| 450              | 0.113                 | 5.5            | 113.0             | 84.7  | 99.7   | 62.7  | 77.7  | 58.3  |
| 400              | 0.128                 | 6.5            | 100.2             | 75.1  | 88.4   | 55.6  | 68.9  | 51.6  |
| 350              | 0.147                 | 7.5            | 87.4              | 65.5  | 77.1   | 48.5  | 60.1  | 45.1  |
| 300              | 0.172                 | 8.5            | 74.6              | 55.9  | 65.8   | 41.4  | 51.3  | 38.4  |
| 250              | 0.207                 | 10.5           | 61.8              | 46.3  | 54.5   | 34.3  | 42.5  | 31.9  |
| 200              | 0.261                 | 13.0           | 49.0              | 36.7  | 43.2   | 27.2  | 33.7  | 25.3  |
| 150              | 0.354                 | 17.5           | 36.2              | 27.1  | 31.9   | 20.1  | 24.9  | 18.7  |
| 100              | 0.548                 | 25.5           | 23.4              | 17.5  | 20.6   | 13.0  | 16.1  | 12.1  |

$$\text{Field of View} = \text{CCD Size} / \text{Optical Magnification}$$

C-MOUNT  
2/3" 1MP

- Useful range of focal length for Machine Vision:  $f=12\text{mm} - 36\text{mm}$
- Locking set screws for zoom, focus and iris

# M3Z1228C-MP



|                            |                       |                                      |               |      |               |
|----------------------------|-----------------------|--------------------------------------|---------------|------|---------------|
| Focal Length               |                       | 12mm - 36mm                          |               |      |               |
| Max. Aperture Ratio        |                       | 1:2.8                                |               |      |               |
| Max. Image Format          |                       | 8.8mm x 6.6mm ( $\phi$ 11mm)         |               |      |               |
| Operation Range            | Iris                  | F2.8 - F16C                          |               |      |               |
|                            | Focus                 | 0.2m - Inf.(Tele) 0.05m - Inf.(Wide) |               |      |               |
|                            | Zoom                  | 12mm - 36mm                          |               |      |               |
| Control                    | Iris                  | Manual                               |               |      |               |
|                            | Focus                 | Manual                               |               |      |               |
|                            | Zoom                  | Manual                               |               |      |               |
| Object Dimension at M.O.D. | 12mm                  | 4.0(H)cm x 3.0(V)cm 2/3"             |               |      |               |
|                            | 36mm                  | 4.8(H)cm x 3.6(V)cm 2/3"             |               |      |               |
| Angle of View              | D                     | 2/3"                                 | 50.4° - 16.8° | 1/2" | 37.5° - 12.5° |
|                            | H                     |                                      | 41.0° - 13.6° |      | 30.2° - 10.0° |
|                            | V                     |                                      | 31.2° - 10.4° |      | 22.8° - 7.6°  |
|                            | Operating Temperature |                                      | -10°C ~ +50°C |      |               |

※ Please note M3Z1228C-MP is produced to order

|                    |                    |               |               |      |              |
|--------------------|--------------------|---------------|---------------|------|--------------|
| Effective Lens     | Front              | $\phi$ 27.2mm |               |      |              |
| Aperture           | Rear               | $\phi$ 12.1mm |               |      |              |
| Back Focal Length  | Tele               | 13.5mm        |               |      |              |
|                    | Wide               | 14.7mm        |               |      |              |
| Distortion         | Tele               | 2/3"          | +3.5%(y=5.5)  | 1/2" | +1.7%(y=4.0) |
|                    | Wide               |               | -2.6% (y=5.5) |      | -1.9%(y=4.0) |
| Flange Back Length | 17.526mm           |               |               |      |              |
| Mount              | C-Mount            |               |               |      |              |
| Filter Size        | M35.5 P=0.5mm      |               |               |      |              |
| Dimensions         | $\phi$ 41.6mm x 53 |               |               |      |              |
| Weight             | 105g               |               |               |      |              |

- Wide zoom range for general inspection, documentation, and visual aid applications

## MLH-10X

1/2"

MACRO

ZOOM

MANUAL



|                       |                       |               |              |              |              |
|-----------------------|-----------------------|---------------|--------------|--------------|--------------|
| Optical Magnification | 0.084X - 0.84X        |               |              |              |              |
| Max. Magnification    | 0.084mm - 0.84mm      |               |              |              |              |
| Max. Aperture Ratio   | 1:5.6                 |               |              |              |              |
| Max. Image Format     | 6.4mm x 4.8mm (φ 8mm) |               |              |              |              |
| Operation Range       | Iris                  | F5.6 - F32C   |              |              |              |
|                       | Focus                 | 0.15m - 0.45m |              |              |              |
| Control               | Iris                  | Manual        |              |              |              |
|                       | Focus                 | Manual        |              |              |              |
|                       | Zoom                  | Manual        |              |              |              |
| Angle of View         | D                     | 21.6° - 4.5°  |              | 17.0° - 3.3° | 13.0° - 2.5° |
|                       | H                     | 1/2"          | 18.0° - 3.6° | 1/3"         | 13.8° - 2.7° |
|                       | V                     |               | 13.8° - 2.7° |              | 10.6° - 2.0° |
| Operating Temperature | -10°C ~ +50°C         |               |              |              |              |

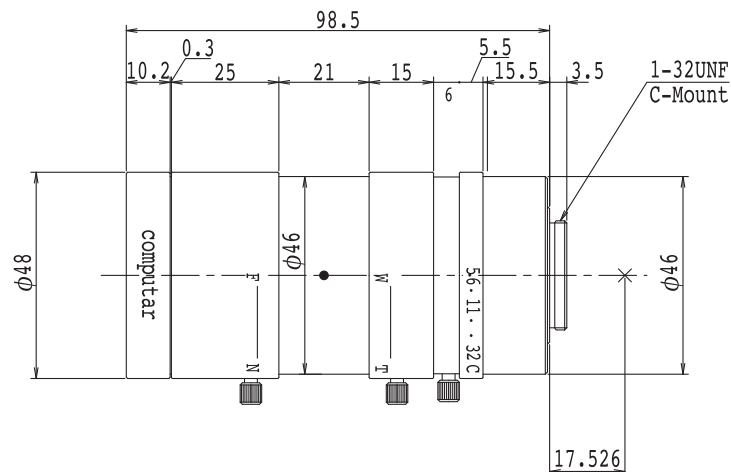
|                    |                 |                         |
|--------------------|-----------------|-------------------------|
| Distortion         | 1/2"            | +0.9% at 0.084X (y=4.0) |
|                    |                 | +1.6% at 0.84X (y=4.0)  |
| Back Focal Length  | 23.29mm         |                         |
| Flange Back Length | 17.526mm        |                         |
| Mount              | C-Mount         |                         |
| Filter Size        | M46 P=0.75mm    |                         |
| Dimensions         | φ 48mm x 98.5mm |                         |
| Weight             | 260g            |                         |

| Working Distance |        | Optical Magnification | Field of View(mm) |       |       |                          |       |       |       |                          |       |       |       |                          |
|------------------|--------|-----------------------|-------------------|-------|-------|--------------------------|-------|-------|-------|--------------------------|-------|-------|-------|--------------------------|
|                  |        |                       | 1/2"              |       |       | Magnification on Monitor | 1/3"  |       |       | Magnification on Monitor | 1/4"  |       |       | Magnification on Monitor |
| (mm)             |        | H                     | V                 | D     | H     |                          | V     | D     | H     |                          | V     | D     |       |                          |
| 150              | Wide   | 0.084X                | 76.2              | 57.1  | 95.2  | 3.73X                    | 57.1  | 42.9  | 71.4  | 4.98X                    | 42.9  | 32.1  | 53.6  | 6.64X                    |
|                  | Middle | 0.19X                 | 33.5              | 25.2  | 42.3  | 8.47X                    | 25.2  | 18.9  | 31.4  | 11.29X                   | 18.9  | 14.2  | 23.6  | 15.06X                   |
|                  | Tele   | 0.84X                 | 7.6               | 5.7   | 9.5   | 37.34X                   | 5.7   | 4.3   | 7.1   | 49.78X                   | 4.3   | 3.2   | 5.4   | 66.38X                   |
| 200              | Wide   | 0.06X                 | 106.7             | 80.0  | 133.3 | 2.67X                    | 80.0  | 60.0  | 100.0 | 3.56X                    | 60.0  | 45.0  | 75.0  | 4.74X                    |
|                  | Middle | 0.13X                 | 47.8              | 36.1  | 59.4  | 5.87X                    | 36.1  | 27.2  | 44.9  | 7.83X                    | 27.2  | 20.4  | 33.9  | 10.44X                   |
|                  | Tele   | 0.60X                 | 10.7              | 8.0   | 13.3  | 26.67X                   | 8.0   | 6.0   | 10.0  | 35.56X                   | 6.0   | 4.5   | 7.5   | 47.41X                   |
| 250              | Wide   | 0.045X                | 142.2             | 106.7 | 177.8 | 2.00X                    | 106.7 | 80.0  | 133.3 | 2.67X                    | 80.0  | 60.0  | 100.0 | 3.56X                    |
|                  | Middle | 0.101X                | 62.3              | 47.1  | 77.0  | 4.49X                    | 47.1  | 35.5  | 58.5  | 5.99X                    | 35.5  | 26.7  | 44.2  | 7.98X                    |
|                  | Tele   | 0.45X                 | 14.2              | 10.7  | 17.8  | 20.00X                   | 10.7  | 8.0   | 13.3  | 26.67X                   | 8.0   | 6.0   | 10.0  | 35.56X                   |
| 300              | Wide   | 0.036X                | 177.8             | 133.3 | 222.2 | 1.60X                    | 133.3 | 100.0 | 166.7 | 2.13X                    | 100.0 | 75.0  | 125.0 | 2.84X                    |
|                  | Middle | 0.082X                | 76.8              | 58.2  | 94.8  | 3.63X                    | 58.2  | 43.8  | 72.2  | 4.84X                    | 43.8  | 33.0  | 54.6  | 6.46X                    |
|                  | Tele   | 0.36X                 | 17.8              | 13.3  | 22.2  | 16.00X                   | 13.3  | 10.0  | 16.7  | 21.34X                   | 10.0  | 7.5   | 12.5  | 28.45X                   |
| 350              | Wide   | 0.03X                 | 213.3             | 160.0 | 266.7 | 1.33X                    | 160.0 | 120.0 | 200.0 | 1.78X                    | 120.0 | 90.0  | 150.0 | 2.37X                    |
|                  | Middle | 0.069X                | 91.4              | 69.3  | 112.7 | 3.05X                    | 69.3  | 52.2  | 85.9  | 4.07X                    | 52.2  | 39.3  | 65.0  | 5.42X                    |
|                  | Tele   | 0.30X                 | 21.3              | 16.0  | 26.7  | 13.34X                   | 16.0  | 12.0  | 20.0  | 17.78X                   | 12.0  | 9.0   | 15.0  | 23.71X                   |
| 400              | Wide   | 0.025X                | 256.0             | 192.0 | 320.0 | 1.11X                    | 192.0 | 144.0 | 240.0 | 1.48X                    | 144.0 | 108.0 | 180.0 | 1.98X                    |
|                  | Middle | 0.06X                 | 106.0             | 80.3  | 130.7 | 2.63X                    | 80.3  | 60.6  | 99.7  | 3.5X                     | 60.6  | 45.6  | 75.4  | 4.67X                    |
|                  | Tele   | 0.25X                 | 25.6              | 19.2  | 32.0  | 11.11X                   | 19.2  | 14.4  | 24.0  | 14.82X                   | 14.4  | 10.8  | 18.0  | 19.76X                   |
| 450              | Wide   | 0.022X                | 290.9             | 218.2 | 363.6 | 0.98X                    | 218.2 | 163.6 | 272.7 | 1.30X                    | 163.6 | 122.7 | 204.5 | 1.74X                    |
|                  | Middle | 0.05X                 | 120.7             | 91.5  | 148.7 | 2.31X                    | 91.5  | 69.0  | 113.5 | 3.08X                    | 69.0  | 51.9  | 85.9  | 4.1X                     |
|                  | Tele   | 0.22X                 | 29.1              | 21.8  | 36.4  | 9.78X                    | 21.8  | 16.4  | 27.3  | 13.04X                   | 16.4  | 12.3  | 20.5  | 17.38X                   |

Field of View : Horizontal (mm) x Vertical (mm) x Diagonal (mm)

Monitor Magnification on 14inch Monitor

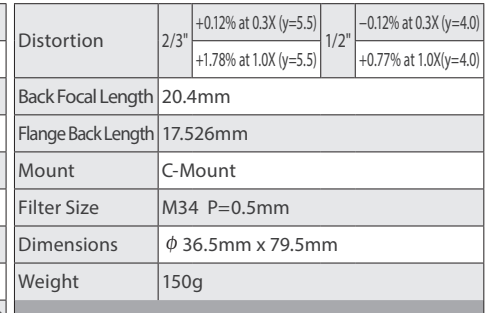
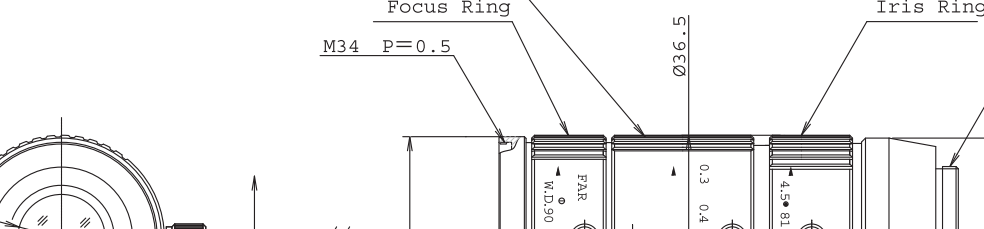
Magnification on Monitor = Optical Magnification x Monitor Size / CCD Size



## MACHINE VISION LENS

- High resolution macro zoom lens
- 3.3X magnification
- Attachment of fiber ring light can be installed (Ring Guide: M34 P=0.5)

## MANUAL


$$\text{Magnification on Monitor} = \text{Optical Magnification} \times \text{Monitor Size} / \text{CCD Size}$$


Technical drawing of the 1000 Series 1/2" lens assembly, showing a front view and a side view with dimensions and labels.

**Labels:**

- Zoom Ring
- Focus Ring
- M34 P=0.5
- Iris Ring
- 1-32UNF

**Dimensions:**

- Front View:  $\varnothing 15.5$
- Side View:  $\varnothing 36$ ,  $\varnothing 36.5$ ,  $\varnothing 35.5$
- Lengths: 4.8, 13.2, 25.2, 14.7, (16.8), 17.526
- Internal Markings: FAR, NEAR, M.D.90, 0.3, 0.4, 0.5, 0.7, 1x, 4.5, 61, 22, C
- Thread: 1-32UNF

**Notes:**

- (AT 1x)
- (IN AIR)

# 5 MEGAPIXEL TELECENTRIC MACRO ZOOM LENS

MACHINE VISION LENS

- 5 megapixel resolution for a 1.1-inch sensor
- 7.1X magnification (0.5X - 0.07X)
- Relative Illumination rate is more than 70%

- Adjustable W.D. (182mm - 577.2mm)
- Telecentric design at 0.25X - 0.5X

## TEC-V7X

1.1"

5MP

TELECEN

MACRO

ZOOM

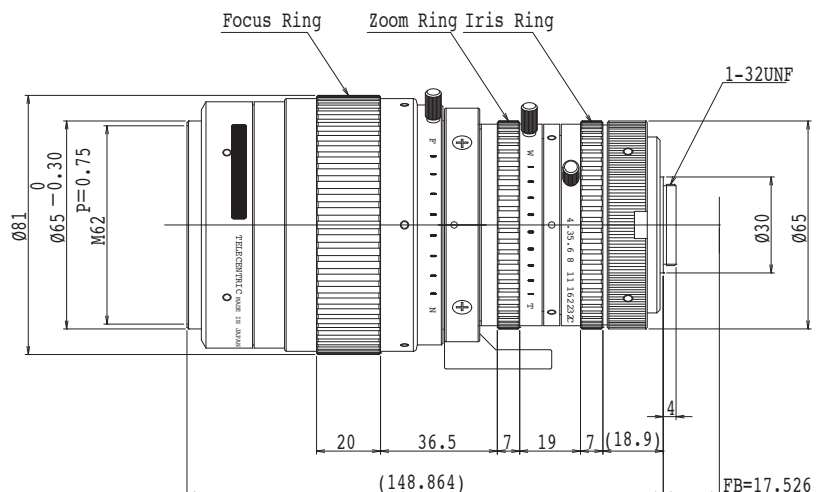
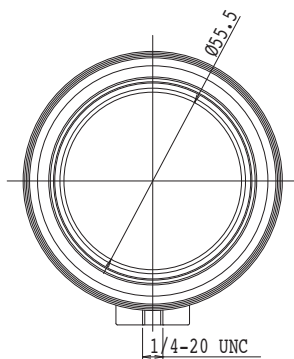
MANUAL



|                       |                            |
|-----------------------|----------------------------|
| Optical Magnification | 0.07X - 0.5X               |
| Max. Aperture Ratio   | 1 : 4.3                    |
| Max. Image Format     | 12.3mm x 12.3mm (φ 17.4mm) |
| Operation Range       | Iris F4.3 - F32            |
|                       | Focus 182mm - 577.2mm      |
| Control               | Iris Manual operation      |
|                       | Focus Manual operation     |
|                       | Zoom Manual operation      |
| Operating Temperature | -10° C ~ 50° C             |

|                    |      |                 |       |    |        |      |       |
|--------------------|------|-----------------|-------|----|--------|------|-------|
| Optical distortion | tele | 1.1"            | 1.0%  | 1" | 0.84%  | 2/3" | 0.39% |
|                    | wide |                 | -1.7% |    | -1.45% |      | -0.7% |
| BackFocal Length   | tele | 39.53mm         |       |    |        |      |       |
|                    | wide | 49.78mm         |       |    |        |      |       |
| Flange Back Length |      | 17.526mm        |       |    |        |      |       |
| Mount              |      | C Mount         |       |    |        |      |       |
| Filter Size        |      | M62 x P0.75     |       |    |        |      |       |
| Dimensions         |      | ϕ 61 x 152.86mm |       |    |        |      |       |
| Weight             |      | 1.4kg           |       |    |        |      |       |

| Working Distance(mm) |        | Optical Magnification | Field of View(mm) |        |        |        |        |        |        |       |        |
|----------------------|--------|-----------------------|-------------------|--------|--------|--------|--------|--------|--------|-------|--------|
|                      |        |                       | 1.1"              |        |        | 1"     |        |        | 2/3"   |       |        |
| (mm)                 |        |                       | H                 | V      | D      | H      | V      | D      | H      | V     | D      |
| 182                  | Wide   | 0.2525                | 48.74             | 48.74  | 69.12  | 50.32  | 38.06  | 63.28  | 34.88  | 26.16 | 43.6   |
|                      | Middle | 0.3643                | 33.64             | 33.64  | 47.33  | 34.72  | 26.3   | 43.6   | 24.12  | 18.1  | 30.11  |
|                      | Tele   | 0.5                   | 24.6              | 24.6   | 34.75  | 25.4   | 19.246 | 31.88  | 17.65  | 13.26 | 22     |
| 200                  | Wide   | 0.2258                | 54.52             | 54.62  | 76.94  | 56.3   | 42.56  | 70.84  | 39     | 29.24 | 48.76  |
|                      | Middle | 0.3258                | 37.62             | 37.62  | 52.95  | 38.83  | 29.4   | 48.78  | 26.96  | 20.24 | 33.67  |
|                      | Tele   | 0.4451                | 27.5              | 27.5   | 38.68  | 28.38  | 21.51  | 35.64  | 19.72  | 14.81 | 24.62  |
| 300                  | Wide   | 0.1413                | 87.48             | 87.48  | 124.06 | 90.34  | 68.18  | 114.1  | 62.46  | 46.8  | 78.178 |
|                      | Middle | 0.2037                | 60.24             | 60.24  | 85.34  | 62.18  | 47.06  | 78.18  | 42.15  | 32.38 | 53.898 |
|                      | Tele   | 0.2784                | 44                | 44     | 61.94  | 45.42  | 34.3   | 57.46  | 31.55  | 23.69 | 39.38  |
| 400                  | Wide   | 0.1037                | 119.47            | 119.47 | 169.98 | 123.4  | 93.02  | 156.05 | 85.2   | 63.82 | 106.71 |
|                      | Middle | 0.1495                | 82.15             | 82.15  | 115.97 | 84.8   | 64.16  | 106.72 | 58.82  | 44.12 | 73.48  |
|                      | Tele   | 0.2042                | 59.99             | 59.99  | 84.52  | 61.92  | 46.89  | 77.82  | 43     | 32.28 | 53.7   |
| 500                  | Wide   | 0.082                 | 151.25            | 151.25 | 215.44 | 156.25 | 117.67 | 197.8  | 107.78 | 80.68 | 135.04 |
|                      | Middle | 0.1183                | 103.92            | 103.92 | 146.82 | 107.28 | 81.12  | 135    | 74.37  | 55.78 | 92.94  |
|                      | Tele   | 0.1617                | 75.84             | 75.84  | 106.89 | 78.29  | 59.28  | 98.4   | 54.36  | 40.8  | 67.88  |
| 577.5                | Wide   | 0.0708                | 175.21            | 175.21 | 250.66 | 181.4  | 136.35 | 229.82 | 125.08 | 93.62 | 156.76 |
|                      | Middle | 0.102                 | 120.57            | 120.57 | 170.44 | 124.47 | 94.1   | 156.74 | 86.28  | 64.72 | 107.84 |
|                      | Tele   | 0.1398                | 87.99             | 87.99  | 124.04 | 90.8   | 68.75  | 114.16 | 63.06  | 47.32 | 78.74  |





# 5MP TELECENTRIC LENS

MACHINE VISION LENS

TELECEN  
MACRO  
ZOOM

- Compact body design, compatible with 5MP sensors
- Optical magnification 0.057x - 0.5x

- Relative Illuminance more than 80%
- Low distortion, less than 1%

## TEC-M55MPW

2/3"

5MP

TELECEN

MACRO

ZOOM

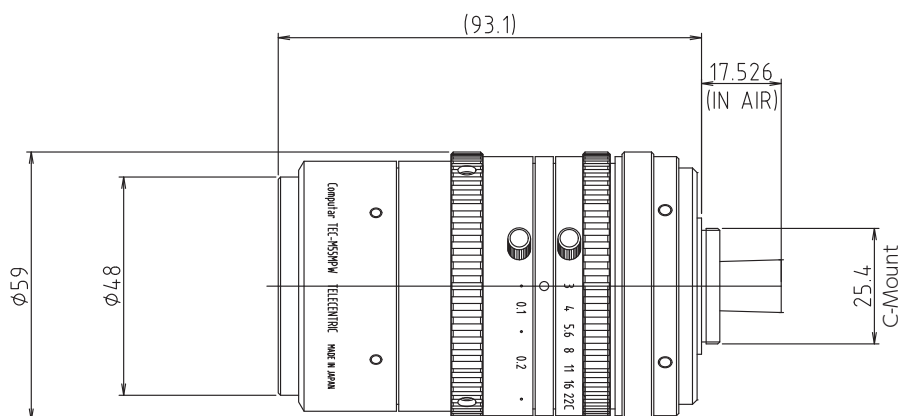
MANUAL



|                           |                                    |
|---------------------------|------------------------------------|
| Focal length              | 55mm (at 0.057X)<br>51mm (at 0.5X) |
| Max Aperture Ratio        | 1:3.0                              |
| Max. Image Format         | 8.8mm x 6.6mm (φ11mm)              |
| Operation Iris            | F3.0-F22C                          |
| Range Focus               | 139mm - 1000mm                     |
| Magnification             | 0.057x - 0.5x                      |
| Relative Illumination     | 94% (at 0.057x)<br>81% (at 0.5x)   |
| Control Iris              | Manual                             |
| Control Focus             | Manual                             |
| Object Dimension at M.O.D | 1.7(H)cm x 1.3(V)cm 2/3"           |
| Operation Temperature     | -10° C ~ 50° C                     |

|                    |                  |                                                   |
|--------------------|------------------|---------------------------------------------------|
| Distortion         | 2/3"             | +0.52% at 0.057x (y=5.5)<br>+0.6% at 0.5x (y=5.5) |
| Back focal length  | 17.0mm           |                                                   |
| Flange Back Length | 17.526mm         |                                                   |
| Mount              | C-Mount          |                                                   |
| Filter Size        | Focal length     |                                                   |
| Dimensions         | φ59.0mm x 93.1mm |                                                   |
| Weight             | 470g             |                                                   |

| Working Distance(mm) | Optical Magnification (X) | Field of View(mm) |       |       |      |      |      |
|----------------------|---------------------------|-------------------|-------|-------|------|------|------|
|                      |                           | 2/3"              |       | 1/2"  |      | 1/3" |      |
|                      |                           | H                 | V     | H     | V    | H    | V    |
| 1000                 | 0.057                     | 154.4             | 115.8 | 112.3 | 84.2 | 84.2 | 63.2 |
| 950                  | 0.060                     | 146.7             | 110.0 | 106.7 | 80.0 | 80.0 | 60.0 |
| 900                  | 0.064                     | 137.5             | 103.1 | 100.0 | 75.0 | 75.0 | 56.3 |
| 850                  | 0.067                     | 131.3             | 98.5  | 95.5  | 71.6 | 71.6 | 53.7 |
| 800                  | 0.072                     | 122.2             | 91.7  | 88.9  | 66.7 | 66.7 | 50.0 |
| 750                  | 0.077                     | 114.3             | 85.7  | 83.1  | 62.3 | 62.3 | 46.8 |
| 700                  | 0.083                     | 106.0             | 79.5  | 77.1  | 57.8 | 57.8 | 43.4 |
| 650                  | 0.089                     | 98.9              | 74.2  | 71.9  | 53.9 | 53.9 | 40.4 |
| 600                  | 0.097                     | 90.7              | 68.0  | 66.0  | 49.5 | 49.5 | 37.1 |
| 550                  | 0.106                     | 83.0              | 62.3  | 60.4  | 45.3 | 45.3 | 34.0 |
| 500                  | 0.118                     | 74.6              | 55.9  | 54.2  | 40.7 | 40.7 | 30.5 |
| 450                  | 0.132                     | 66.7              | 50.0  | 48.5  | 36.4 | 36.4 | 27.3 |
| 400                  | 0.150                     | 58.7              | 44.0  | 42.7  | 32.0 | 32.0 | 24.0 |
| 350                  | 0.173                     | 50.9              | 38.2  | 37.0  | 27.7 | 27.7 | 20.8 |
| 300                  | 0.204                     | 43.1              | 32.4  | 31.4  | 23.5 | 23.5 | 17.6 |
| 250                  | 0.251                     | 35.1              | 26.3  | 25.5  | 19.1 | 19.1 | 14.3 |
| 200                  | 0.323                     | 27.2              | 20.4  | 19.8  | 14.9 | 14.9 | 11.1 |
| 150                  | 0.456                     | 19.3              | 14.5  | 14.0  | 10.5 | 10.5 | 7.9  |
| 140                  | 0.504                     | 17.5              | 13.1  | 12.7  | 9.5  | 9.5  | 7.1  |



- Very low distortion compared to standard macro lens
- Wide depth of field
- Working distance: 140mm - Infinity

- Suitable for use as a telephoto lens and macro lens
- Fast F2.8 F-stop at Infinity

### TEC-M55

2/3"

TELECEN

MACRO

ZOOM

MANUAL



|                           |                                                   |
|---------------------------|---------------------------------------------------|
| Focal Length              | 55mm                                              |
| Max. Aperture Ratio       | 1:2.8                                             |
| Max. Image Format         | 8.8mm x 6.6mm (φ 11mm)                            |
| Operation Range           | Iris F2.8 - F32C<br>Focus 0.14m - Inf.            |
| Magnification             | Inf. - 0.5X (Max 1.0X at 140mm with 2X Converter) |
| Relative Illumination     | 78.5% (at 0.5X)                                   |
| Depth of Field            | 1/2" 3.5mm(at 0.5X F2.8), 6.0mm(at 0.5X F5.6)     |
| Control                   | Iris Manual<br>Focus Manual                       |
| Object Dimension at M.O.D | 1.7(H)cm x 1.3(V)cm 2/3"                          |
| Operating Temperature     | -10° C ~ +50° C                                   |

|                    |                                  |                                                |      |                                                |
|--------------------|----------------------------------|------------------------------------------------|------|------------------------------------------------|
| Distortion         | 2/3"                             | +0.2% at 0.2X (y=5.5)<br>+0.6% at 0.5X (y=5.5) | 1/2" | +0.1% at 0.2X (y=4.0)<br>+0.3% at 0.5X (y=4.0) |
|                    |                                  |                                                |      |                                                |
| Back Focal Length  | 29.8mm                           |                                                |      |                                                |
| Flange Back Length | 17.526mm                         |                                                |      |                                                |
| Mount              | C-Mount                          |                                                |      |                                                |
| Filter Size        | M43 P=0.75mm                     |                                                |      |                                                |
| Dimensions         | φ 53.0mm x 92.9mm (Max. at 0.5X) |                                                |      |                                                |
| Weight             | 320g                             |                                                |      |                                                |

#### TEC-M55

| Working Distance<br>(mm) | Optical Magnification | Field of View(mm) |       |       |       |       |       |
|--------------------------|-----------------------|-------------------|-------|-------|-------|-------|-------|
|                          |                       | 2/3"              |       | 1/2"  |       | 1/3"  |       |
|                          |                       | H                 | V     | H     | V     | H     | V     |
| 5000                     | 0.011X                | 796.2             | 597.8 | 579.7 | 435.0 | 435.0 | 326.3 |
| 4000                     | 0.014X                | 636.1             | 477.6 | 463.1 | 347.5 | 347.5 | 260.7 |
| 3000                     | 0.018X                | 476.0             | 357.4 | 346.6 | 260.1 | 260.1 | 195.1 |
| 2000                     | 0.028X                | 315.9             | 237.2 | 230.0 | 172.6 | 172.6 | 129.5 |
| 1500                     | 0.037X                | 235.9             | 177.1 | 177.1 | 128.9 | 128.9 | 96.7  |
| 1000                     | 0.056X                | 155.8             | 117.0 | 113.4 | 85.1  | 85.1  | 63.9  |
| 950                      | 0.059X                | 147.8             | 111.0 | 107.6 | 80.7  | 80.7  | 60.6  |
| 900                      | 0.063X                | 139.8             | 105.0 | 101.8 | 76.4  | 76.4  | 57.3  |
| 850                      | 0.067X                | 131.8             | 99.0  | 96.0  | 72.0  | 72.0  | 54.0  |
| 800                      | 0.071X                | 123.8             | 92.9  | 90.1  | 67.6  | 67.6  | 50.7  |
| 750                      | 0.076X                | 115.8             | 86.9  | 84.3  | 63.2  | 63.2  | 47.4  |
| 700                      | 0.081X                | 107.8             | 80.9  | 78.5  | 58.9  | 58.9  | 44.2  |
| 650                      | 0.088X                | 99.8              | 74.9  | 72.6  | 55.5  | 54.5  | 40.9  |
| 600                      | 0.096X                | 91.8              | 68.9  | 66.8  | 50.1  | 50.1  | 37.6  |
| 550                      | 0.105X                | 83.8              | 62.9  | 61.0  | 45.8  | 45.8  | 34.3  |
| 500                      | 0.116X                | 75.8              | 56.9  | 55.2  | 41.4  | 41.4  | 31.0  |
| 450                      | 0.130X                | 67.8              | 50.9  | 49.3  | 37.0  | 37.0  | 27.8  |
| 400                      | 0.147X                | 59.8              | 44.9  | 43.5  | 32.6  | 32.6  | 24.5  |
| 350                      | 0.170X                | 51.8              | 38.8  | 37.7  | 28.3  | 28.3  | 21.2  |
| 300                      | 0.201X                | 43.8              | 32.8  | 31.8  | 23.9  | 23.9  | 17.9  |
| 250                      | 0.246X                | 35.7              | 26.8  | 26.0  | 19.5  | 19.5  | 14.6  |
| 200                      | 0.317X                | 27.7              | 20.8  | 20.2  | 15.1  | 15.1  | 11.4  |
| 150                      | 0.446X                | 19.7              | 14.8  | 14.3  | 10.8  | 10.8  | 8.1   |
| 140                      | 0.486X                | 18.1              | 13.6  | 13.2  | 9.9   | 9.9   | 7.4   |

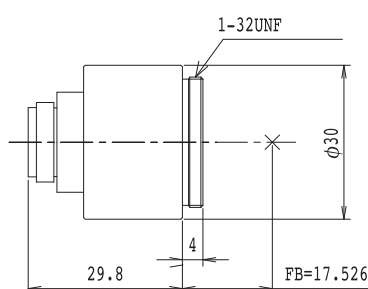
#### TEC-M55 with 0.75X Converter

| Working Distance<br>(mm) | Optical Magnification | Field of View(mm) |       |       |       |       |       |
|--------------------------|-----------------------|-------------------|-------|-------|-------|-------|-------|
|                          |                       | 2/3"              |       | 1/2"  |       | 1/3"  |       |
|                          |                       | H                 | V     | H     | V     | H     | V     |
| 5000                     | 0.008X                | 1066.2            | 797.6 | 773.3 | 579.2 | 579.2 | 434.0 |
| 4000                     | 0.010X                | 851.9             | 637.3 | 617.8 | 462.7 | 462.7 | 346.8 |
| 3000                     | 0.014X                | 637.6             | 476.9 | 462.4 | 346.3 | 346.3 | 259.5 |
| 2000                     | 0.021X                | 423.2             | 316.6 | 306.9 | 229.9 | 229.9 | 172.3 |
| 1500                     | 0.028X                | 316.1             | 236.4 | 229.2 | 171.7 | 171.7 | 128.6 |
| 1000                     | 0.423X                | 208.9             | 156.2 | 151.5 | 113.4 | 113.4 | 85.0  |
| 950                      | 0.045X                | 198.2             | 148.2 | 143.7 | 107.6 | 107.6 | 80.6  |
| 900                      | 0.047X                | 187.4             | 140.2 | 135.9 | 101.8 | 101.8 | 76.3  |
| 850                      | 0.050X                | 176.7             | 132.2 | 128.1 | 96.0  | 96.0  | 71.9  |
| 800                      | 0.053X                | 166.0             | 124.2 | 120.4 | 90.1  | 90.1  | 67.5  |
| 750                      | 0.057X                | 155.3             | 116.1 | 112.6 | 84.3  | 84.3  | 63.2  |
| 700                      | 0.061X                | 144.6             | 108.1 | 104.8 | 78.5  | 78.5  | 58.8  |
| 650                      | 0.066X                | 133.8             | 100.1 | 97.0  | 72.7  | 72.7  | 54.5  |
| 600                      | 0.072X                | 123.1             | 92.1  | 89.3  | 66.8  | 66.8  | 50.1  |
| 550                      | 0.079X                | 112.4             | 84.1  | 81.5  | 61.0  | 61.0  | 45.7  |
| 500                      | 0.087X                | 101.7             | 76.0  | 73.7  | 55.2  | 55.2  | 41.4  |
| 450                      | 0.097X                | 90.9              | 68.0  | 65.9  | 49.4  | 49.4  | 37.0  |
| 400                      | 0.110X                | 80.2              | 60.0  | 58.2  | 43.6  | 43.6  | 32.6  |
| 350                      | 0.127X                | 69.5              | 52.0  | 50.4  | 37.7  | 37.7  | 28.3  |
| 300                      | 0.151X                | 58.7              | 43.9  | 42.6  | 31.9  | 31.9  | 23.9  |
| 250                      | 0.184X                | 48.0              | 35.9  | 34.8  | 26.1  | 26.1  | 19.5  |
| 200                      | 0.238X                | 37.3              | 27.9  | 27.0  | 20.2  | 20.2  | 15.2  |
| 150                      | 0.334X                | 26.5              | 19.8  | 19.2  | 14.4  | 14.4  | 10.8  |
| 140                      | 0.363X                | 24.4              | 18.2  | 17.7  | 13.2  | 13.2  | 9.9   |

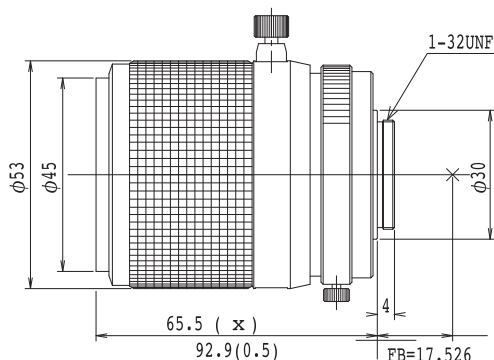
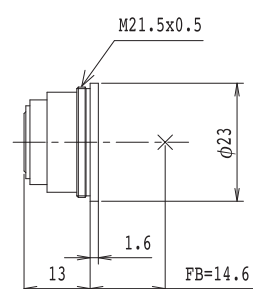
#### TEC-M55 with 2X Converter

| Working Distance<br>(mm) | Optical Magnification | Field of View(mm) |       |       |       |       |       |
|--------------------------|-----------------------|-------------------|-------|-------|-------|-------|-------|
|                          |                       | 2/3"              |       | 1/2"  |       | 1/3"  |       |
|                          |                       | H                 | V     | H     | V     | H     | V     |
| 5000                     | 0.019X                | 453.1             | 340.3 | 330.0 | 247.7 | 247.7 | 185.8 |
| 4000                     | 0.024X                | 362.0             | 271.9 | 263.6 | 197.9 | 197.9 | 148.5 |
| 3000                     | 0.032X                | 270.9             | 203.4 | 197.3 | 148.1 | 148.1 | 111.1 |
| 2000                     | 0.049X                | 179.8             | 135.0 | 130.9 | 98.3  | 98.3  | 73.7  |
| 1500                     | 0.065X                | 134.3             | 100.8 | 97.8  | 73.4  | 73.4  | 55.0  |
| 1000                     | 0.098X                | 88.7              | 66.6  | 64.6  | 48.5  | 48.5  | 36.4  |
| 950                      | 0.104X                | 84.1              | 63.2  | 61.3  | 46.0  | 46.0  | 34.5  |
| 900                      | 0.110X                | 79.6              | 59.8  | 58.0  | 43.5  | 43.5  | 32.6  |
| 850                      | 0.116X                | 75.0              | 56.3  | 54.6  | 41.0  | 41.0  | 30.8  |
| 800                      | 0.124X                | 70.5              | 52.9  | 51.3  | 38.5  | 38.5  | 28.9  |
| 750                      | 0.133X                | 65.9              | 49.5  | 48.0  | 36.0  | 36.0  | 27.0  |
| 700                      | 0.142X                | 61.4              | 46.1  | 44.7  | 33.5  | 33.5  | 25.2  |
| 650                      | 0.154X                | 56.8              | 42.7  | 41.4  | 31.0  | 31.0  | 23.3  |
| 600                      | 0.167X                | 52.3              | 39.2  | 38.1  | 28.6  | 28.6  | 21.4  |
| 550                      | 0.183X                | 47.7              | 35.8  | 34.7  | 26.1  | 26.1  | 19.6  |
| 500                      | 0.203X                | 43.2              | 32.4  | 31.4  | 23.6  | 23.6  | 17.7  |
| 450                      | 0.227X                | 38.6              | 29.0  | 28.1  | 21.1  | 21.1  | 15.8  |
| 400                      | 0.257X                | 34.0              | 25.6  | 24.8  | 18.6  | 18.6  | 14.0  |
| 350                      | 0.297X                | 29.5              | 22.1  | 21.5  | 16.1  | 16.1  | 12.1  |
| 300                      | 0.352X                | 24.9              | 18.7  | 18.2  | 13.6  | 13.6  | 10.2  |
| 250                      | 0.431X                | 20.4              | 15.3  | 14.8  | 11.1  | 11.1  | 8.4   |
| 200                      | 0.558X                | 15.8              | 11.9  | 11.5  | 8.7   | 8.7   | 6.5   |
| 150                      | 0.789X                | 11.3              | 8.5   | 8.2   | 6.2   | 6.2   | 4.6   |
| 140                      | 0.861X                | 10.4              | 7.8   | 7.6   | 5.7   | 5.7   | 4.3   |

#### 2X Converter



#### 0.75X Converter





| MODEL NO.   | EX1.5CS                                                       |
|-------------|---------------------------------------------------------------|
| Description | 1.5X Extender for CS-mount                                    |
| Application | Attached between lens and camera -<br>Makes focal length 1.5X |



| MODEL NO.   | EX1.5C                                                        |
|-------------|---------------------------------------------------------------|
| Description | 1.5X Extender for C-mount                                     |
| Application | Attached between lens and camera -<br>Makes focal length 1.5X |



| MODEL NO.   | EX2CS                                                       |
|-------------|-------------------------------------------------------------|
| Description | 2X Extender for CS-mount                                    |
| Application | Attached between lens and camera -<br>Makes focal length 2X |



| MODEL NO.   | EX2C                                                        |
|-------------|-------------------------------------------------------------|
| Description | 2X Extender for C-mount                                     |
| Application | Attached between lens and camera -<br>Makes focal length 2X |



| MODEL NO.   | VM100                                                                   |
|-------------|-------------------------------------------------------------------------|
| Description | Extension Tube Kit 40, 20, 10, 5, 1, 0.5mm                              |
| Application | Attached between lens and camera -<br>Reduces minimum focusing distance |



| MODEL NO.   | VM400                                                                        |
|-------------|------------------------------------------------------------------------------|
| Description | 5mm Adapter Ring                                                             |
| Application | Attached between lens and camera -<br>Adapts C-mount lens to CS-mount camera |



| MODEL NO.   | M55-0.75X                                      |
|-------------|------------------------------------------------|
| Description | Rear converter 0.75X<br>(Designed for TEC-M55) |
| Application | Makes focal length 0.75X                       |



| MODEL NO.   | M55-2.0X                                      |
|-------------|-----------------------------------------------|
| Description | Rear converter 2.0X<br>(Designed for TEC-M55) |
| Application | Makes focal length 2.0X                       |



| MODEL NO.   | VM0811                                                  |
|-------------|---------------------------------------------------------|
| Description | Filter holder for V0828-MPY<br>(M72 P=0.75)             |
| Application | Attached between filter and lens for 1.1" sensor camera |



| MODEL NO.   | VM0810                                                |
|-------------|-------------------------------------------------------|
| Description | Filter holder for V0828-MPY<br>(M67 P=0.75)           |
| Application | Attached between filter and lens for 1" sensor camera |



## SWIR LENS

MACHINE VISION / SECURITY LENS

- Designed for SWIR (800-1700nm) range
- Compact & Light weight

- Low F-stop
- Covers 640 x 512, 15μm Sensor

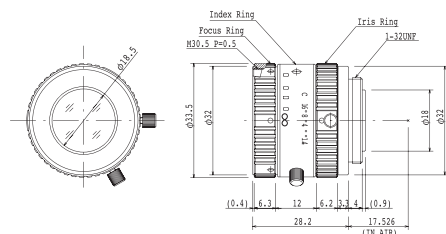
### M1614-SW

2/3"

SWIR

FIX

MANUAL



|                            |       |                            |       |      |       |
|----------------------------|-------|----------------------------|-------|------|-------|
| Focal Length               |       | 16mm                       |       |      |       |
| Max. Aperture Ratio        |       | 1:1.4                      |       |      |       |
| Max. Image Circle          |       | φ 12.3mm                   |       |      |       |
| Operation Range            | Iris  | F1.4 - F16C                |       |      |       |
|                            | Focus | 0.3m - Inf.                |       |      |       |
| Control                    | Iris  | Manual                     |       |      |       |
|                            | Focus | Manual                     |       |      |       |
| Object Dimension at M.O.D. |       | 17.0(H)cm x 12.7(V)cm 2/3" |       |      |       |
| Angle of View              | D     | 2/3"                       | 37.7° | 1/2" | 27.9° |
|                            | H     |                            | 30.6° |      | 22.5° |
|                            | V     |                            | 23.2° |      | 16.9° |
| Operating Temperature      |       | - 10° C ~ +50° C           |       |      |       |

|                    |                   |               |      |               |
|--------------------|-------------------|---------------|------|---------------|
| Distortion         | 2/3"              | -0.5% (y=5.5) | 1/2" | -0.5% (y=4.0) |
| Back Focal Length  | 13.3mm (Inf)      |               |      |               |
| Flange Back Length | 17.526mm          |               |      |               |
| Mount              | C-Mount           |               |      |               |
| Filter Size        | M30.5 P=0.5mm     |               |      |               |
| Dimensions         | φ 33.5mm x 28.2mm |               |      |               |
| Weight             | 60g               |               |      |               |

|                                 |   |                      |       |                      |       |                      |       |
|---------------------------------|---|----------------------|-------|----------------------|-------|----------------------|-------|
| Angle of View (InGaAs Detector) | D | 640 x 512            | 41.7° | 320 x 256            | 35.3° | 320 x 256            | 28.6° |
|                                 | H | (Pixel Pitch : 15μm) | 33.2° | (Pixel Pitch : 25μm) | 27.9° | (Pixel Pitch : 20μm) | 22.5° |
|                                 | V | H9.60mm x V7.68mm    | 26.8° | H8.00mm x V6.40mm    | 22.5° | H6.40mm x V5.12mm    | 18.0° |

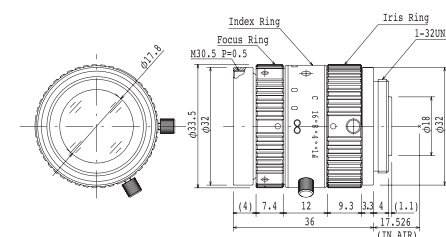
### M2514-SW

2/3"

SWIR

FIX

MANUAL



|                            |       |                           |       |      |       |
|----------------------------|-------|---------------------------|-------|------|-------|
| Focal Length               |       | 25mm                      |       |      |       |
| Max. Aperture Ratio        |       | 1:1.4                     |       |      |       |
| Max. Image Circle          |       | φ 12.3mm                  |       |      |       |
| Operation Range            | Iris  | F1.4 - F16C               |       |      |       |
|                            | Focus | 0.3m - Inf.               |       |      |       |
| Control                    | Iris  | Manual                    |       |      |       |
|                            | Focus | Manual                    |       |      |       |
| Object Dimension at M.O.D. |       | 10.5(H)cm x 7.8(V)cm 2/3" |       |      |       |
| Angle of View              | D     | 2/3"                      | 24.7° | 1/2" | 18.1° |
|                            | H     |                           | 19.8° |      | 14.5° |
|                            | V     |                           | 14.9° |      | 10.9° |
| Operating Temperature      |       | -10° C ~ +50° C           |       |      |       |

|                    |                   |               |      |               |
|--------------------|-------------------|---------------|------|---------------|
| Distortion         | 2/3"              | -0.5% (y=5.5) | 1/2" | -0.2% (y=4.0) |
| Back Focal Length  | 13.4mm (Inf)      |               |      |               |
| Flange Back Length | 17.526mm          |               |      |               |
| Mount              | C-Mount           |               |      |               |
| Filter Size        | M30.5 P=0.5mm     |               |      |               |
| Dimensions         | φ 33.5mm x 36.0mm |               |      |               |
| Weight             | 71.2g             |               |      |               |

|                                 |   |                      |       |                      |       |                      |       |
|---------------------------------|---|----------------------|-------|----------------------|-------|----------------------|-------|
| Angle of View (InGaAs Detector) | D | 640 x 512            | 27.6° | 320 x 256            | 23.0° | 320 x 256            | 18.5° |
|                                 | H | (Pixel Pitch : 15μm) | 21.6° | (Pixel Pitch : 25μm) | 18.1° | (Pixel Pitch : 20μm) | 14.5° |
|                                 | V | H9.60mm x V7.68mm    | 17.3° | H8.00mm x V6.40mm    | 14.5° | H6.40mm x V5.12mm    | 11.6° |



- Designed for SWIR (800-1700nm) range
- Compact & light weight

- Low F-stop
- Covers 640 x 512, 15μm sensor

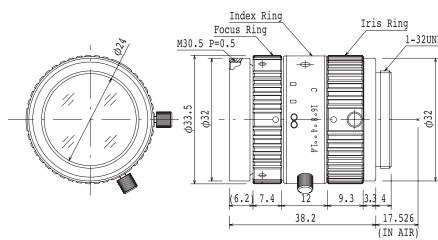
## M3514-SW

2/3"

SWIR

FIX

MANUAL



|                            |       |                          |       |      |       |
|----------------------------|-------|--------------------------|-------|------|-------|
| Focal Length               |       | 35mm                     |       |      |       |
| Max. Aperture Ratio        |       | 1:1.4                    |       |      |       |
| Max. Image Circle          |       | φ 12.3mm                 |       |      |       |
| Operation Range            | Iris  | F1.4 - F16C              |       |      |       |
|                            | Focus | 0.3m - Inf.              |       |      |       |
| Control                    | Iris  | Manual                   |       |      |       |
|                            | Focus | Manual                   |       |      |       |
| Object Dimension at M.O.D. |       | 8.0(H)cm x 6.0(V)cm 2/3" |       |      |       |
| Angle of View              | D     | 2/3"                     | 18.4° | 1/2" | 13.4° |
|                            | H     |                          | 14.7° |      | 10.7° |
|                            | V     |                          | 11.1° |      | 8.1°  |
| Operating Temperature      |       | -10°C ~ +50°C            |       |      |       |

|                    |                   |               |      |             |
|--------------------|-------------------|---------------|------|-------------|
| Distortion         | 2/3"              | -0.1% (y=5.5) | 1/2" | -0% (y=4.0) |
| Back Focal Length  | 14.6mm            |               |      |             |
| Flange Back Length | 17.526mm          |               |      |             |
| Mount              | C-Mount           |               |      |             |
| Filter Size        | M30.5 P=0.5mm     |               |      |             |
| Dimensions         | φ 33.5mm x 38.2mm |               |      |             |
| Weight             | 87g               |               |      |             |

|                                 |   |                                   |       |                                   |       |                                   |       |
|---------------------------------|---|-----------------------------------|-------|-----------------------------------|-------|-----------------------------------|-------|
| Angle of View (InGaAs Detector) | D | 640 x 512<br>(Pixel Pitch : 15μm) | 20.5° | 320 x 256<br>(Pixel Pitch : 25μm) | 17.1° | 320 x 256<br>(Pixel Pitch : 20μm) | 13.7° |
|                                 | H | H9.60mm x V7.68mm                 | 16.0° | H8.00mm x V6.40mm                 | 13.4° | H6.40mm x V5.12mm                 | 10.7° |
|                                 | V |                                   | 12.9° |                                   | 10.7° |                                   | 8.6°  |

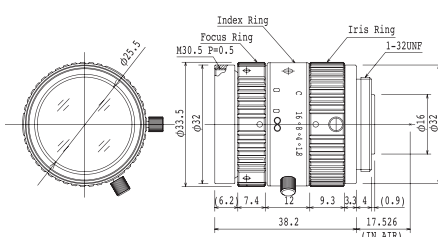
## M5018-SW

2/3"

SWIR

FIX

MANUAL



|                            |       |                           |       |      |      |
|----------------------------|-------|---------------------------|-------|------|------|
| Focal Length               |       | 50mm                      |       |      |      |
| Max. Aperture Ratio        |       | 1:1.8                     |       |      |      |
| Max. Image Circle          |       | φ 12.3mm                  |       |      |      |
| Operation Range            | Iris  | F1.8 - F16C               |       |      |      |
|                            | Focus | 0.6m - Inf.               |       |      |      |
| Control                    | Iris  | Manual                    |       |      |      |
|                            | Focus | Manual                    |       |      |      |
| Object Dimension at M.O.D. |       | 10.4(H)cm x 7.8(V)cm 2/3" |       |      |      |
| Angle of View              | D     | 2/3"                      | 13.0° | 1/2" | 9.5° |
|                            | H     |                           | 10.4° |      | 7.6° |
|                            | V     |                           | 7.8°  |      | 5.7° |
| Operating Temperature      |       | -10° C ~ +50° C           |       |      |      |

|                    |                   |               |      |               |
|--------------------|-------------------|---------------|------|---------------|
| Distortion         | 2/3"              | -0.3% (y=5.5) | 1/2" | -0.1% (y=4.0) |
| Back Focal Length  | 13.6mm            |               |      |               |
| Flange Back Length | 17.526mm          |               |      |               |
| Mount              | C-Mount           |               |      |               |
| Filter Size        | M30.5 P=0.5mm     |               |      |               |
| Dimensions         | φ 33.5mm x 38.2mm |               |      |               |
| Weight             | 85g               |               |      |               |

|                                 |   |                                   |       |                                   |       |                                   |      |
|---------------------------------|---|-----------------------------------|-------|-----------------------------------|-------|-----------------------------------|------|
| Angle of View (InGaAs Detector) | D | 640 x 512<br>(Pixel Pitch : 15μm) | 14.5° | 320 x 256<br>(Pixel Pitch : 25μm) | 12.1° | 320 x 256<br>(Pixel Pitch : 20μm) | 9.7° |
|                                 | H | H9.60mm x V7.68mm                 | 11.3° | H8.00mm x V6.40mm                 | 9.5°  | H6.40mm x V5.12mm                 | 7.6° |
|                                 | V |                                   | 9.1°  |                                   | 7.6°  |                                   | 6.1° |

## 5MP Lens for ITS

INTELLIGENT TRANSPORT SYSTEM LENS

- 3-Iris type. Manual, DC and P-iris
- Wide Variety range, 9mm, 12mm, 16mm, 25mm

- High resolution for 5MP sensors

M0918FIC-MP

M1218FIC-MP

M1616FIC-MP

M2514FIC-MP

2/3"

5MP

FIX

MANUAL



MG0918KC-MP

MG1218KC-MP

MG1616KC-MP

MG2514KC-MP

2/3"

5MP

FIX

P-iris



## ITS LENS

|             | Model Name  | Format | Mount | Focal length (mm) | Aperture (F) |
|-------------|-------------|--------|-------|-------------------|--------------|
| Manual Iris | M0918FIC-MP | 2/3    | C     | 9                 | 1.8-16C      |
|             | M1218FIC-MP | 2/3    | C     | 12                | 1.8-16C      |
|             | M1616FIC-MP | 2/3    | C     | 16                | 1.6-16C      |
|             | M2514FIC-MP | 2/3    | C     | 25                | 1.4-16C      |
| DC Iris     | MG0918FC-MP | 2/3    | C     | 9                 | 1.8-360C     |
|             | MG1218FC-MP | 2/3    | C     | 12                | 1.8-360C     |
|             | MG1616FC-MP | 2/3    | C     | 16                | 1.6-360C     |
|             | MG2514FC-MP | 2/3    | C     | 25                | 1.4-360C     |
| P Iris      | MG0918KC-MP | 2/3    | C     | 9                 | 1.8-16C      |
|             | MG1218KC-MP | 2/3    | C     | 12                | 1.8-16C      |
|             | MG1616KC-MP | 2/3    | C     | 16                | 1.6-16C      |
|             | MG2514KC-MP | 2/3    | C     | 25                | 1.4-16C      |



# 5MP Lens for ITS (IR Compatible)

INTELLIGENT TRANSPORT SYSTEM LENS

ITS IR

- 3-Iris type. Manual, DC and P-iris
- Compatible with CMOSIS sensor "CMV2000"

- High resolution for 5MP sensors
- IR Compatible

## M2514FIC-MPIR

## M3518FIC-MPIR

## M5020FIC-MPIR

2/3"

5MP

IR

FIX

MANUAL



## MG2514KC-MPIR

## MG3518KC-MPIR

## MG5020KC-MPIR

2/3"

5MP

IR

FIX

P-iris



### ITS LENS (IR Compatible)

|             | Model Name    | Format | Mount | Focal length (mm) | Aperture (F) |
|-------------|---------------|--------|-------|-------------------|--------------|
| Manual Iris | M2514FIC-MPIR | 2/3    | C     | 25                | 1.4-16C      |
|             | M3518FIC-MPIR | 2/3    | C     | 35                | 1.9-16C      |
|             | M5020FIC-MPIR | 2/3    | C     | 50                | 2.0-16C      |
| DC Iris     | MG2514FC-MPIR | 2/3    | C     | 25                | 1.4-360C     |
|             | MG3518FC-MPIR | 2/3    | C     | 35                | 1.8-360C     |
|             | MG5020FC-MPIR | 2/3    | C     | 50                | 2.0-360C     |
| P Iris      | MG2514KC-MPIR | 2/3    | C     | 25                | 1.4-16C      |
|             | MG3518KC-MPIR | 2/3    | C     | 35                | 1.8-16C      |
|             | MG5020KC-MPIR | 2/3    | C     | 50                | 2.0-16C      |





# MEGAPIXEL BOARD LENS

MACHINE VISION LENS

**NEW**

## 4K BOARD LENS

1/1.8"

4K

FIX

BOARD

• Compatible with 1/1.8" Sensor • IR Corrected • 4K Ultra-High Resolution.



E3828KRW



E5228KRW

| No. | Model Name | Format Inch | Mount | Pitch | Focal Length (mm) | Aperture (F) | Angle of view at INF(degrees) |      |      | Angle of view at INF(degrees) |      |      | Angle of view at INF(degrees) |      |      |
|-----|------------|-------------|-------|-------|-------------------|--------------|-------------------------------|------|------|-------------------------------|------|------|-------------------------------|------|------|
|     |            |             |       |       |                   |              | 1/1.8"                        |      |      | 1/2"                          |      |      | 1/3"                          |      |      |
|     |            |             |       |       |                   |              | D                             | H    | V    | D                             | H    | V    | D                             | H    | V    |
| 1   | E3828KRW   | 1/1.8       | M12   | 0.5   | 3.8mm             | F2.8         | 133                           | 107  | 80.7 | 120                           | 96.2 | 72.4 | 90.3                          | 72.4 | 54.3 |
| 2   | E5228KRW   | 1/1.8       | M12   | 0.5   | 5.2mm             | F2.8         | 100                           | 78.6 | 58.2 | 89.0                          | 70.1 | 52.0 | 65.5                          | 52.0 | 38.8 |

**NEW**

## 2 MEGAPIXEL BOARD LENS

1/2.8"

2MP

FIX

BOARD

• Compatible with 1/2.8" Sensor • IR Corrected • Metal Housing



T2820KP

| No. | Model Name | Format Inch | Mount | Pitch | Focal Length (mm) | Aperture (F) | Angle of view at INF(degrees) |     |      | Angle of view at INF(degrees) |     |      | Angle of view at INF(degrees) |      |      | IRCF |
|-----|------------|-------------|-------|-------|-------------------|--------------|-------------------------------|-----|------|-------------------------------|-----|------|-------------------------------|------|------|------|
|     |            |             |       |       |                   |              | 1/2.8"                        |     |      | 1/3"                          |     |      | 1/4"                          |      |      |      |
|     |            |             |       |       |                   |              | D                             | H   | V    | D                             | H   | V    | D                             | H    | V    |      |
| 1   | T2820KP    | 1/2.8       | M12   | 0.5   | 2.8mm             | F2.0         | 139                           | 116 | 71.2 | 129.0                         | 102 | 75.3 | 94.8                          | 75.3 | 56.2 | ×    |
| 2   | T2820KFP   | 1/2.8       | M12   | 0.5   | 2.8mm             | F2.0         | 139                           | 116 | 71.2 | 129.0                         | 102 | 75.3 | 94.8                          | 75.3 | 56.2 | ○    |

## 1 MEGAPIXEL BOARD LENS

1/2"

1MP

FIX

BOARD

• Compatible with 1/2" Sensor • Tough and compact design • M12, P0.5 mount



H0320KP



H0624KP

| No. | Model Name | Format Inch | Mount | Pitch | Focal Length (mm) | Aperture (F) | Distortion | Angle of view at INF(degrees) |       |      | Angle of view at INF(degrees) |      |      | Angle of view at INF(degrees) |      |      |
|-----|------------|-------------|-------|-------|-------------------|--------------|------------|-------------------------------|-------|------|-------------------------------|------|------|-------------------------------|------|------|
|     |            |             |       |       |                   |              |            | 1/2"                          |       |      | 1/3"                          |      |      | 1/4"                          |      |      |
|     |            |             |       |       |                   |              |            | D                             | H     | V    | D                             | H    | V    | D                             | H    | V    |
| 1   | H0320KP    | 1/2         | M12   | 0.5   | 3mm               | F2.0         | -37.5%     | 125.3                         | 104.3 | 80.5 | 98.6                          | 80.5 | 61.3 | 75.8                          | 61.3 | 46.3 |
| 2   | H0624KP    | 1/2         | M12   | 0.5   | 6mm               | F2.4         | -9.0%      | 72.5                          | 59.1  | 45.0 | 55.6                          | 45.0 | 34.0 | 42.3                          | 34.0 | 25.6 |
| 3   | H0924KP    | 1/2         | M12   | 0.5   | 9mm               | F2.4         | -1.6%      | 48.6                          | 39.6  | 30.1 | 37.3                          | 30.1 | 22.7 | 28.3                          | 22.7 | 17.1 |
| 4   | H1620KP    | 1/2         | M12   | 0.5   | 16mm              | F2.0         | 0.4%       | 27.9                          | 22.6  | 17.0 | 21.2                          | 17.0 | 12.8 | 16.0                          | 12.8 | 9.6  |
| 5   | H2520KP    | 1/2         | M12   | 0.5   | 25mm              | F2.0         | 1.0%       | 18.0                          | 14.5  | 10.9 | 13.6                          | 10.9 | 8.2  | 10.3                          | 8.2  | 6.2  |

## 3 MEGAPIXEL ULTRA LOW DISTORTION BOARD LENS

1/1.8"

3MP

FIX

BOARD

• Ultra low distortion (optical distortion 0.1% or less) • Compatible with 1/1.8" Sensor  
• M12, P0.5 mount • Tough and compact design



E1220KV



E2520KV

| No. | Model Name | Format Inch | Mount | Pitch | Focal Length (mm) | Aperture (F) | Distortion | Angle of view at INF(degrees) |      |      | Angle of view at INF(degrees) |      |      | Angle of view at INF(degrees) |      |      |
|-----|------------|-------------|-------|-------|-------------------|--------------|------------|-------------------------------|------|------|-------------------------------|------|------|-------------------------------|------|------|
|     |            |             |       |       |                   |              |            | 1/1.8"                        |      |      | 1/2"                          |      |      | 1/3"                          |      |      |
|     |            |             |       |       |                   |              |            | D                             | H    | V    | D                             | H    | V    | D                             | H    | V    |
| 1   | E1220KV    | 1/1.8       | M12   | 0.5   | 12.0mm            | F2.0         | 0.04%      | 39.5                          | 32.1 | 24.4 | 36.8                          | 29.8 | 22.6 | 28.1                          | 22.6 | 17.1 |
| 2   | E1620KV    | 1/1.8       | M12   | 0.5   | 16.0mm            | F2.0         | -0.07%     | 30.0                          | 24.3 | 18.4 | 27.9                          | 22.6 | 17.0 | 21.2                          | 17.0 | 12.8 |
| 3   | E2520KV    | 1/1.8       | M12   | 0.5   | 25.0mm            | F2.0         | 0.02%      | 19.5                          | 15.7 | 11.9 | 18.1                          | 14.6 | 11.0 | 13.7                          | 11.0 | 8.2  |

# MEGAPIXEL FISHEYE BOARD LENS

MACHINE VISION LENS

FISHEYE  
BOARD  
LENS

**NEW**

## 4K FISHEYE BOARD LENS

1/1.7"

4K

FIX

FISHEYE

• Compatible with 1/1.7" Sensor • IR Corrected • 12MP Ultra-High Resolution • ImmerVision enables Compatibles (E1222KRY)



E1628KRY

E1222KRY

| No. | Model Name | Format Inch | Mount | Pitch | Focal Length (mm) | Aperture (F) | Angle of view at INF(degrees) |   |   | Angle of view at INF(degrees) |       |       | Angle of view at INF(degrees) |       |       |
|-----|------------|-------------|-------|-------|-------------------|--------------|-------------------------------|---|---|-------------------------------|-------|-------|-------------------------------|-------|-------|
|     |            |             |       |       |                   |              | 1/1.7"                        |   |   | 1/3"                          |       |       | 1/4"                          |       |       |
|     |            |             |       |       |                   |              | D                             | H | V | D                             | H     | V     | D                             | H     | V     |
| 1   | E1628KRY   | 1/1.7       | M12   | 0.5   | 1.6mm             | F2.8         | 190.0                         |   |   | 190.0                         | 168.2 | 11.6  | 157.3                         | 125.5 | 94.2  |
| 2   | E1222KRY   | 1/1.7       | M12   | 0.5   | 1.2mm             | F2.2         | 185.0                         |   |   | 185.0                         | 171.5 | 139.5 | 164.2                         | 139.5 | 110.3 |

## MEGAPIXEL FISHEYE BOARD LENS

1/2"

1MP

FIX

FISHEYE

• Compatible with 1/2" Sensor • 2MP High Resolution • ImmerVision enables Compatibles



H1328KP

| No. | Model Name | Format Inch | Mount | Pitch | Focal Length (mm) | Aperture (F) | Angle of view at INF(degrees) |   |   | Angle of view at INF(degrees) |       |       | Angle of view at INF(degrees) |       |   |
|-----|------------|-------------|-------|-------|-------------------|--------------|-------------------------------|---|---|-------------------------------|-------|-------|-------------------------------|-------|---|
|     |            |             |       |       |                   |              | 1/2"                          |   |   | 1/3"                          |       |       | 1/4"                          |       |   |
|     |            |             |       |       |                   |              | D                             | H | V | D                             | H     | V     | D                             | H     | V |
| 1   | H1328KP    | 1/2         | M12   | 0.5   | 1.3mm             | F2.8         | 180.0                         |   |   | 180.0                         | 151.0 | 177.3 | 151.0                         | 117.6 |   |

## 5 MEGAPIXEL FISHEYE BOARD LENS

1/2.5"

5MP

FIX

FISHEYE

• Compatible with 1/2.5" Sensor • IR Corrected • 5MP High Resolution • IP66 (L1028KDRW) • ImmerVision enables Compatibles



L1028KRW

L1028KDRW

| No. | Model Name | Format Inch | Mount | Pitch | Focal Length (mm) | Aperture (F) | Angle of view at INF(degrees) |   |   | Angle of view at INF(degrees) |       |       | Angle of view at INF(degrees) |       |   | Wate Proof |
|-----|------------|-------------|-------|-------|-------------------|--------------|-------------------------------|---|---|-------------------------------|-------|-------|-------------------------------|-------|---|------------|
|     |            |             |       |       |                   |              | 1/2.5"                        |   |   | 1/3"                          |       |       | 1/4"                          |       |   |            |
|     |            |             |       |       |                   |              | D                             | H | V | D                             | H     | V     | D                             | H     | V |            |
| 1   | L1028KRW   | 1/2.5       | M12   | 0.5   | 1.05mm            | F2.8         | 180.0                         |   |   | 180.0                         | 163.2 | 180.0 | 163.2                         | 130.2 |   |            |
| 2   | L1028KDRW  | 1/2.5       | M12   | 0.5   | 1.05mm            | F2.8         | 180.0                         |   |   | 180.0                         | 163.2 | 180.0 | 163.2                         | 130.2 | ○ |            |

## 3 MEGAPIXEL FISHEYE BOARD LENS

1/3"

3MP

FIX

FISHEYE

• Compatible with 1/3" Sensor • IR Corrected • 3MP High Resolution • ImmerVision enables Compatibles



T0928KRW

| No. | Model Name | Format Inch | Mount | Pitch | Focal Length (mm) | Aperture (F) | Angle of view at INF(degrees) |   |   | Angle of view at INF(degrees) |   |   | Angle of view at INF(degrees) |   |       |
|-----|------------|-------------|-------|-------|-------------------|--------------|-------------------------------|---|---|-------------------------------|---|---|-------------------------------|---|-------|
|     |            |             |       |       |                   |              | 1/2"                          |   |   | 1/3"                          |   |   | 1/4"                          |   |       |
|     |            |             |       |       |                   |              | D                             | H | V | D                             | H | V | D                             | H | V     |
| 1   | T0928KRW   | 1/3         | M12   | 0.5   | 0.95mm            | F2.8         | -                             |   |   | 180.0                         |   |   | 180.0                         |   | 145.2 |



## 1. Calculation of Working Distance (WD)

Distance from lens to object (WD) is calculated by putting the size of a camera's imaging device, focal length and an object size into the following formula.

<Formula>

$$WD = H1 + y \times f / y'$$

[ Ex ]

When 2/3" camera with M2514-MP films an object whose vertical size is 120 mm.

f : 25 mm

H1 : 26.77mm

y : 120mm

y' : 6.6mm

Distance from lens to object=

$$WD = 26.77 + 120 \times 25 / 6.6 = 481.32 \text{ mm}$$

## 2. Calculation of Focal Length

When choosing size of a camera's imaging device, the object size and WD are fixed, focal length can be calculated by the following formula. You can select appropriate lens from the focal length.

<Formula>

$$f = y' \times WD / y$$

f = focal length of lens

WD = distance from lens to object

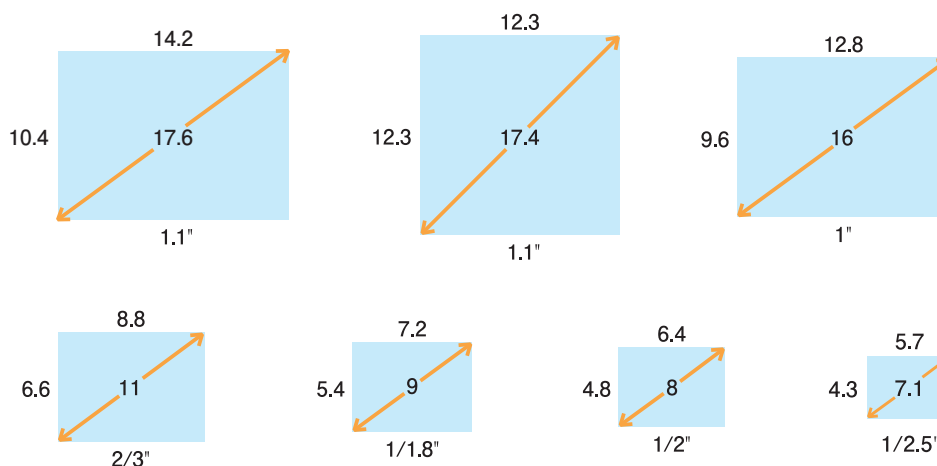
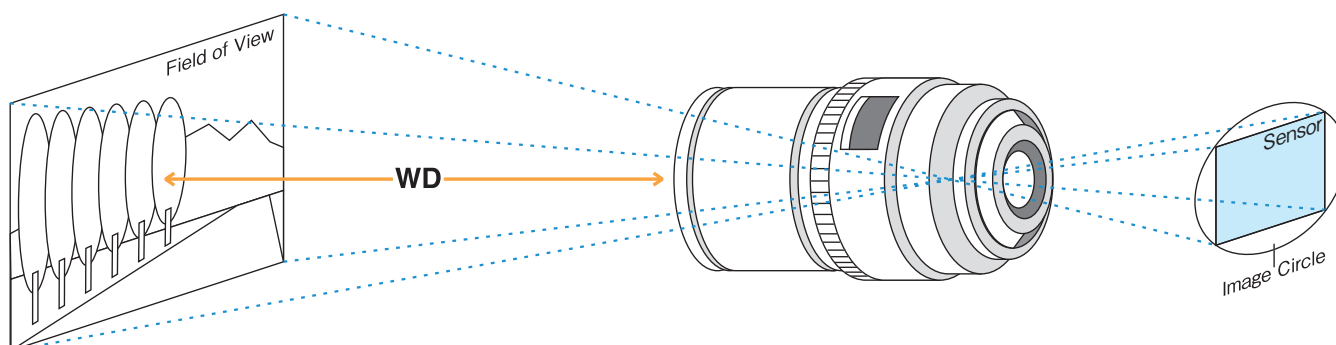
H1 : first principal point

y : vertical size of object

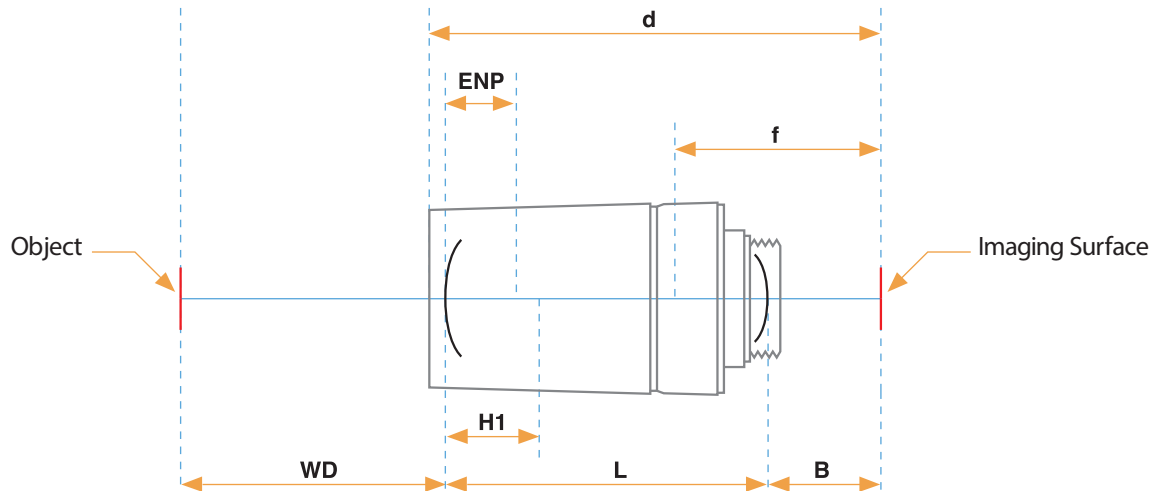
y' : vertical size of camera's imaging device

## CAMERA FORMAT

The size of camera's imaging device also affects the angle of view, with the smaller devices creating narrower angles of view when used on the same lens. The format of the lens, however is irrelevant to the angle of view, it merely needs to project an image which will cover the device, i.e.; the same format of the camera or larger. This also means that 1/3" cameras can utilize the entire range of lenses from 1/3" to 2/3", with a 1/3" 8mm lens giving the same angle as a 2/3" 8mm lens. The latter combination also provides increased resolution and picture quality as only the centre of the lens is being utilized, where the optics can be ground more accurately.



## OPTICAL DATA



|                             |            | Focal Length | First Principal Point | Total Length | Back Focus | Entrance Pupil Diameter | Entrance Pupil Position | Distortion | Extension | Length |
|-----------------------------|------------|--------------|-----------------------|--------------|------------|-------------------------|-------------------------|------------|-----------|--------|
|                             |            | (f)          | (H1)                  | (L)          | (B)        |                         | (ENP)                   |            |           | (d)    |
| MEGAPIXEL LENS              |            |              |                       |              |            |                         |                         |            |           |        |
| H0514-MP2                   |            | 5.1          | 20.2                  | 50.5         | 10.8       | 3.5                     | 15.0                    | -0.7       | 0.1       | 63.0   |
| M0814-MP2                   |            | 8.3          | 19.5                  | 30.7         | 13.1       | 5.8                     | 12.4                    | -0.1       | 0.2       | 45.7   |
| M1214-MP2                   |            | 12.0         | 24.7                  | 28.7         | 13.1       | 8.4                     | 17.7                    | 0.1        | 0.4       | 45.7   |
| M1614-MP2                   |            | 16.0         | 26.2                  | 29.7         | 13.1       | 11.2                    | 14.3                    | -0.1       | 0.8       | 45.7   |
| M2514-MP2                   |            | 25.0         | 23.8                  | 29.3         | 13.1       | 17.5                    | 12.8                    | -0.3       | 2.0       | 53.5   |
| M3514-MP                    |            | 34.0         | 43.7                  | 37.6         | 15.2       | 24.0                    | 37.3                    | -0.3       | 4.9       | 55.7   |
| M5018-MP2                   |            | 48.0         | 22.1                  | 40.9         | 13.1       | 25.9                    | 52.8                    | -0.3       | 4.8       | 55.6   |
| M7528-MP                    |            | 72.6         | 111.5                 | 55.2         | 13.7       | 24.8                    | 47.8                    | 0.2        | 15.5      | 71.0   |
| M0824-MPW2                  |            | 8.0          | 20.0                  | 42.4         | 13.7       | 3.4                     | 13.5                    | -1.87      | -0.3      | 59.0   |
| M1224-MPW2                  |            | 12.0         | 23.5                  | 39.0         | 14.4       | 5.1                     | 16.0                    | -0.02      | 1.75      | 58.0   |
| M1620-MPW2                  |            | 16.0         | 23.9                  | 27.9         | 14.7       | 8.0                     | 15.8                    | 0.09       | 3.3       | 47.0   |
| M2518-MPW2                  |            | 25.0         | 27.4                  | 28.3         | 13.8       | 13.9                    | 20.8                    | 0.03       | 4.3       | 49.0   |
| M3520-MPW2                  |            | 35.0         | 14.0                  | 25.7         | 18.0       | 17.5                    | 20.4                    | 0.01       | 7.3       | 50.9   |
| M5028-MPW2                  |            | 50.0         | 7.4                   | 27.8         | 27.7       | 17.9                    | 21.3                    | 0.03       | 7.3       | 58.9   |
| M2518-MPW                   |            | 25.0         | 27.4                  | 27.1         | 13.9       | 13.9                    | 20.8                    | 0.03       | 6.2       | 61.7   |
| V0828-MPY                   |            | 8.2          | 22.7                  | 69.8         | 8.6        | 2.9                     | 16.1                    | -0.6       | 0.8       | 71.5   |
| V1228-MPY                   |            | 12.4         | 22.3                  | 51.8         | 8.4        | 4.3                     | 13.3                    | -0.5       | 0.9       | 53.7   |
| V1628-MPY                   |            | 16.0         | 19.9                  | 48.6         | 9.4        | 5.6                     | 11.6                    | -0.5       | 1.1       | 53.8   |
| V2528-MPY                   |            | 25.0         | 18.0                  | 37.5         | 11.3       | 8.7                     | 12.9                    | 0.3        | 3.5       | 51.5   |
| V3528-MPY                   |            | 35.0         | 15.6                  | 46.7         | 11.7       | 12.2                    | 17.3                    | -0.1       | 4.8       | 62.7   |
| V5028-MPY                   |            | 50.0         | 9.5                   | 54.2         | 11.9       | 17.3                    | 23.2                    | 0.1        | 8.6       | 62.7   |
| V0814-MP                    |            | 8.25         | 24.3                  | 74.1         | 11.7       | 5.7                     | 17.1                    | -7.1       | 0.6       | 75.5   |
| V1214-MP                    |            | 12.7         | 25.2                  | 67.4         | 12.6       | 8.8                     | 14.7                    | -5.9       | 1.4       | 69.0   |
| V1614-MP                    |            | 16.2         | 25.3                  | 57.3         | 12.1       | 11.3                    | 10.8                    | -3.8       | 0.9       | 66.0   |
| V2514-MP                    |            | 25.0         | 30.9                  | 49.2         | 15.7       | 17.2                    | 18.3                    | -3.1       | 2.0       | 60.1   |
| V5014-MP                    |            | 50.0         | 38.8                  | 62.2         | 14.6       | 34.7                    | 66.5                    | 0.8        | 5.1       | 65.5   |
| MACRO ZOOM LENS             |            |              |                       |              |            |                         |                         |            |           |        |
| MLH-10X                     | 0.15m wide | 18.8         | 91.3                  | 87.2         | 23.4       | 3.8                     | 3.8                     | 2.5        | -         | 116.0  |
|                             | 0.15m Tele | 68.7         | -0.1                  | 87.2         | 23.4       | 20.1                    | 20.1                    | 2.9        | -         | 116.0  |
| MEGAPIXEL MACRO ZOOM LENS   |            |              |                       |              |            |                         |                         |            |           |        |
| MLM-3XMP                    | Wide       | 30.2         | 30.2                  | 61.6         | 20.5       | 9.5                     | 38.9                    | 0.4        | -         | 97.0   |
|                             | Tele       | 29.1         | 44.7                  | 61.6         | 20.5       | 61.4                    | 313.8                   | 2.3        | -         | 97.0   |
| TELECENTRIC LENS            |            |              |                       |              |            |                         |                         |            |           |        |
| TEC-M55                     |            | 54.8         | 27.8                  | 47.3         | 31.4       | 20.1                    | 75.1                    | 0.4        | 27.4      | 83.0   |
| x0.75                       |            | 41.2         | 51.6                  | 64.0         | 14.7       | 19.8                    | 73.8                    | -0.9       | 27.4      | 83.0   |
| x2.0                        |            | 95.7         | 83.7                  | 68.8         | 24.9       | 19.8                    | 73.8                    | 0.4        | 27.4      | 83.0   |
| TEC-M55MPW                  |            | 55.0         | 17.3                  | 67.6         | 17.0       | 19.6                    | 71.4                    | 0.52       | -         | 110.6  |
| TELECENTRIC MACRO ZOOM LENS |            |              |                       |              |            |                         |                         |            |           |        |
| TEC-V7X                     | Tele       | 106.3        | -136.1                | 122.4        | 39.5       | 53.6                    | 375.0                   | 1.0        | -         | 166.4  |
|                             | Wide       | 47.7         | -143.1                | 112.1        | 49.8       | 11.0                    | 126.9                   | -1.7       | -         | 166.4  |

\* First principal point and entrance pupil position are calculated from front lens

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