



# MC3M020X | DATASHEET

## Macro lens for 1.1" detectors, magnification 0.200x, C mount



### SPECIFICATIONS

#### Optical specifications

Magnification	(x)	0.200
Image circle	(mm)	17.6
Max sensor size		1.1"
Working distance <sup>1</sup>	(mm)	187.2
Focal length	(mm)	32
<i>f/N</i>		5
<i>wf/N<sup>2</sup></i>		6
Distortion <sup>3</sup>	(%)	< 0.08
Field depth <sup>4</sup>	(mm)	7.8
Resolution (max) <sup>5</sup>	(µm)	19.0

#### Mechanical specifications

Mount		C
Length <sup>6</sup>	(mm)	26.1
Outer diameter	(mm)	30.0
Mass	(g)	27

<sup>1</sup> Working distance: distance between the front end of the mechanics and the object. Set this distance within ±3% of the nominal value for maximum resolution and minimum distortion.

<sup>2</sup> working *f/N*: the real *f/N* of a lens in operating conditions.

<sup>3</sup> Percent deviation of the real image compared to an ideal, undistorted image.

<sup>4</sup> At the borders of the field depth the image can be still used for measurement but, to get a very sharp image, only half of the nominal field depth should be considered. Pixel size used for calculation is 3.45 µm.

<sup>5</sup> Object side, calculated with the Rayleigh criterion with λ= 520 nm

<sup>6</sup> Measured from the front end of the mechanics to the camera flange.

### KEY ADVANTAGES

#### Nearly zero distortion

The very low optical distortion makes MC3M lenses perfectly suitable for high-precision positioning/inspection/measurement applications where a high depth of field is not required.

#### Wide image circle for sensors up to 1.1"

#### High resolution

Specifically designed to work in "macro" configuration at a fixed working distance.

#### Simple and robust design for industrial environments

#### Compactness

30 mm outer diameter for applications where only little room is available.

**MC3M series** is a family of macro lenses designed to capture images of small objects when high resolution and nearly zero distortion are required.

### FIELD OF VIEW

Sensors	(mm x mm)
2/3" (8.50 x 7.09 mm x mm)	42.50 x 35.45
1/1.2" (11.35 x 7.13 mm x mm)	56.75 x 35.65
1" (14.19 x 7.51 mm x mm)	70.95 x 37.55
1.1" (14.16 x 10.37 mm x mm)	70.80 x 51.85

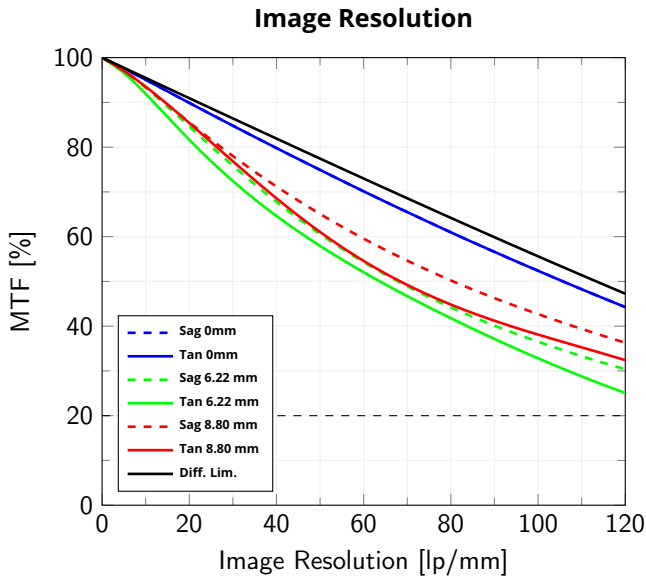
### COMPATIBLE PRODUCTS

Full list of compatible products available [here](#).



A wide selection of innovative machine vision components.

All product specifications and data are subject to change without notice to improve reliability, functionality, design or other. Photos and pictures are for illustration purposes only. Data are reported by design, actual lens performance may vary due to manufacturing tolerances.



Modulation Transfer Function (MTF) vs. Image Resolution, wavelength range 486 nm - 656 nm. Fields in legend are represented as distance from the optical axis to the corner of the image

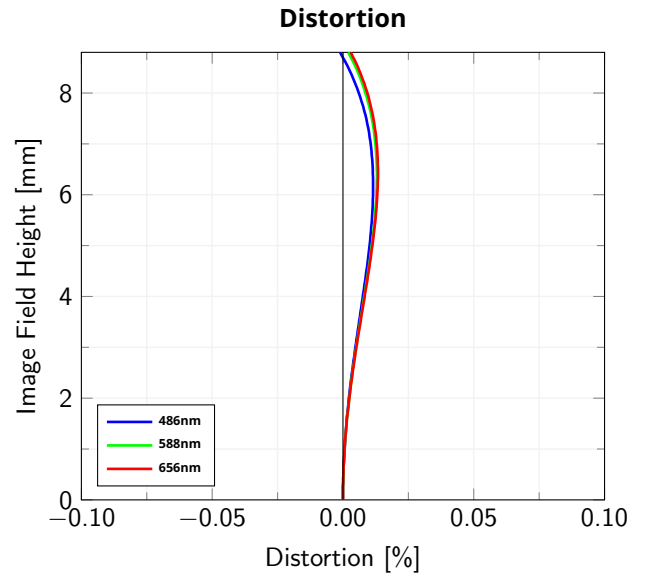
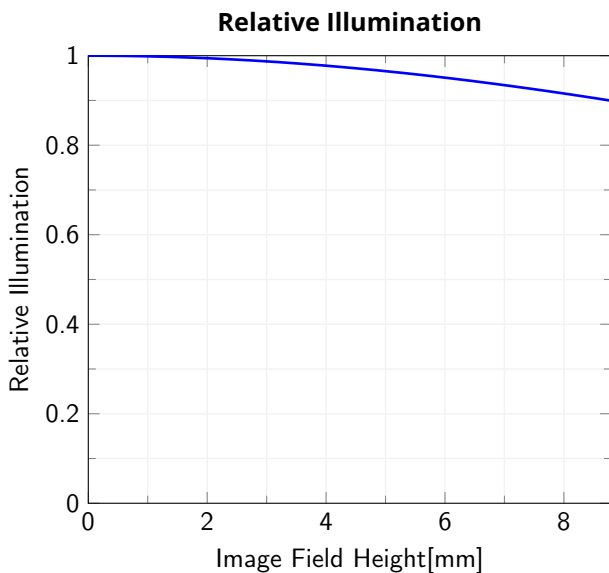
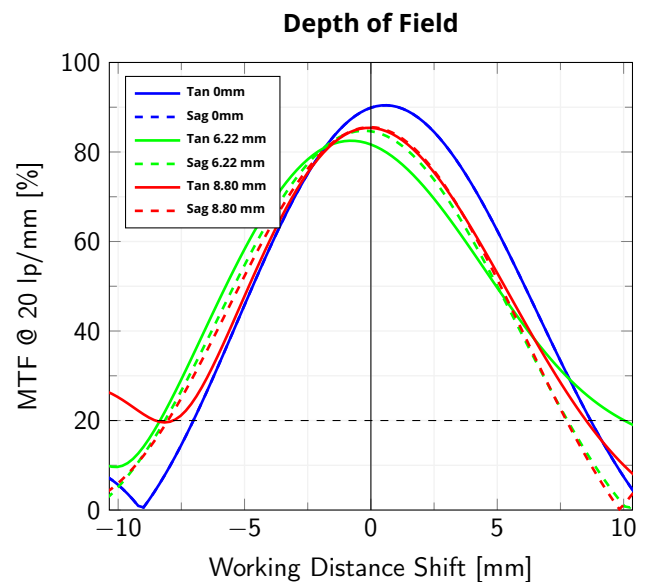


Image Field Height vs. Distortion, from the optical axis to the corner of the image



Relative illumination vs. Image Field Height, from the optical axis to the corner of the created image



Modulation Transfer Function (MTF) @ 20 lp/mm vs. Working Distance Shift from the best focus Working Distance, wavelength range 486 nm - 656 nm. Fields in legend are represented as distance from the center of the image.

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