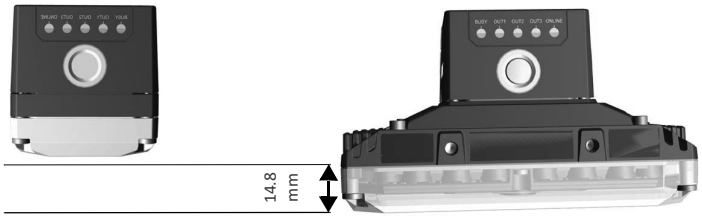
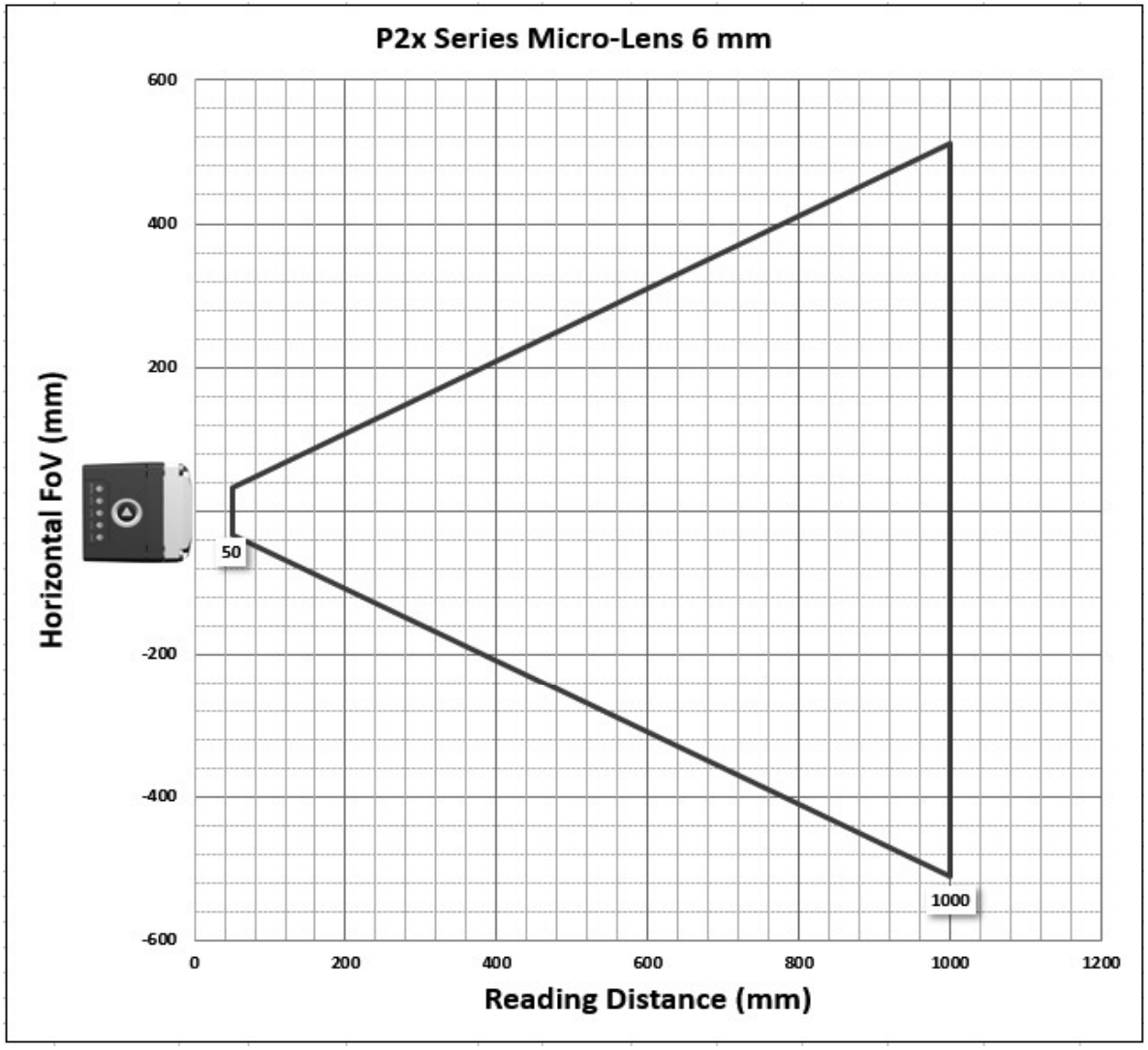
LENSES

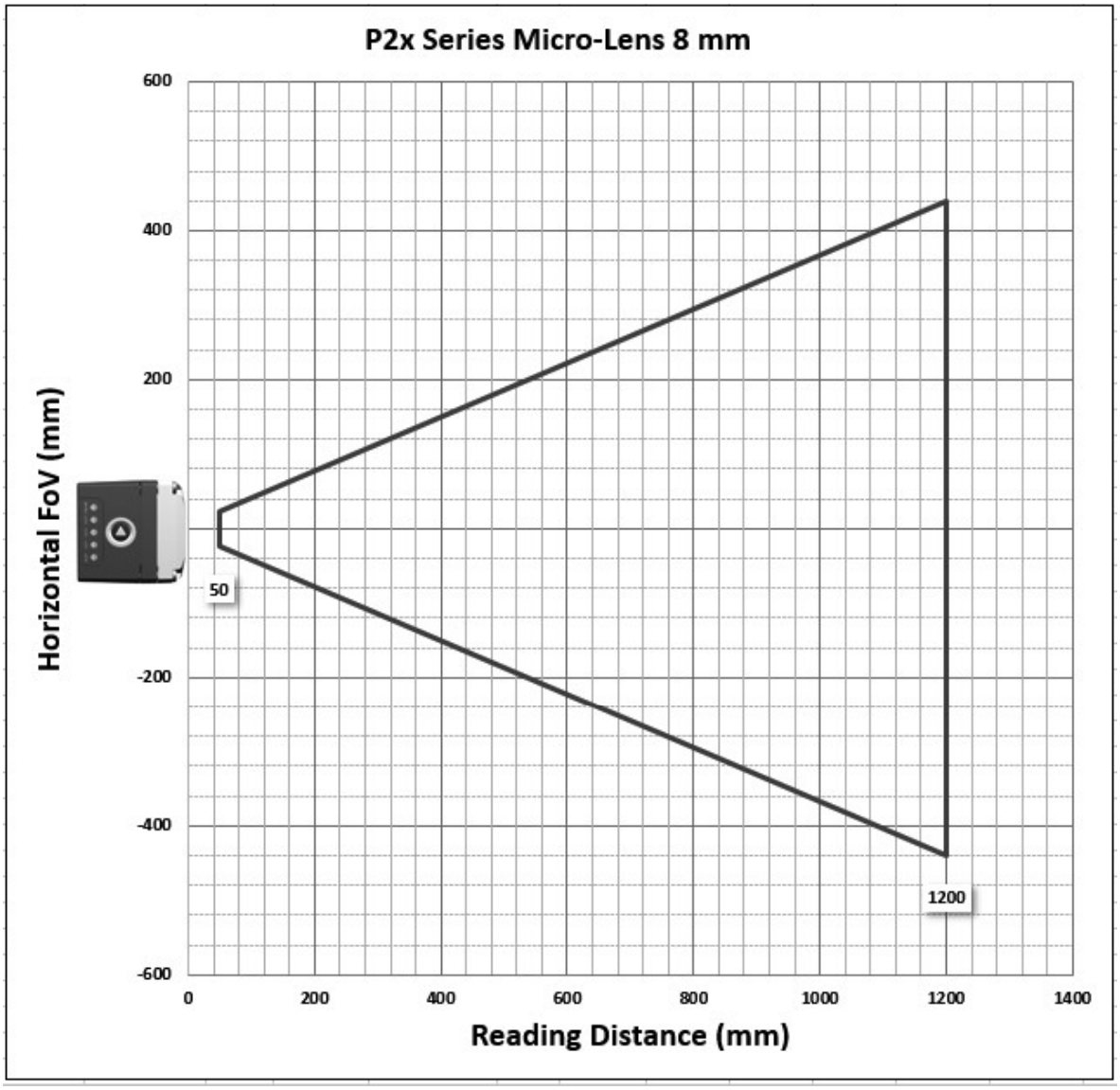
Micro-Lens Field of View

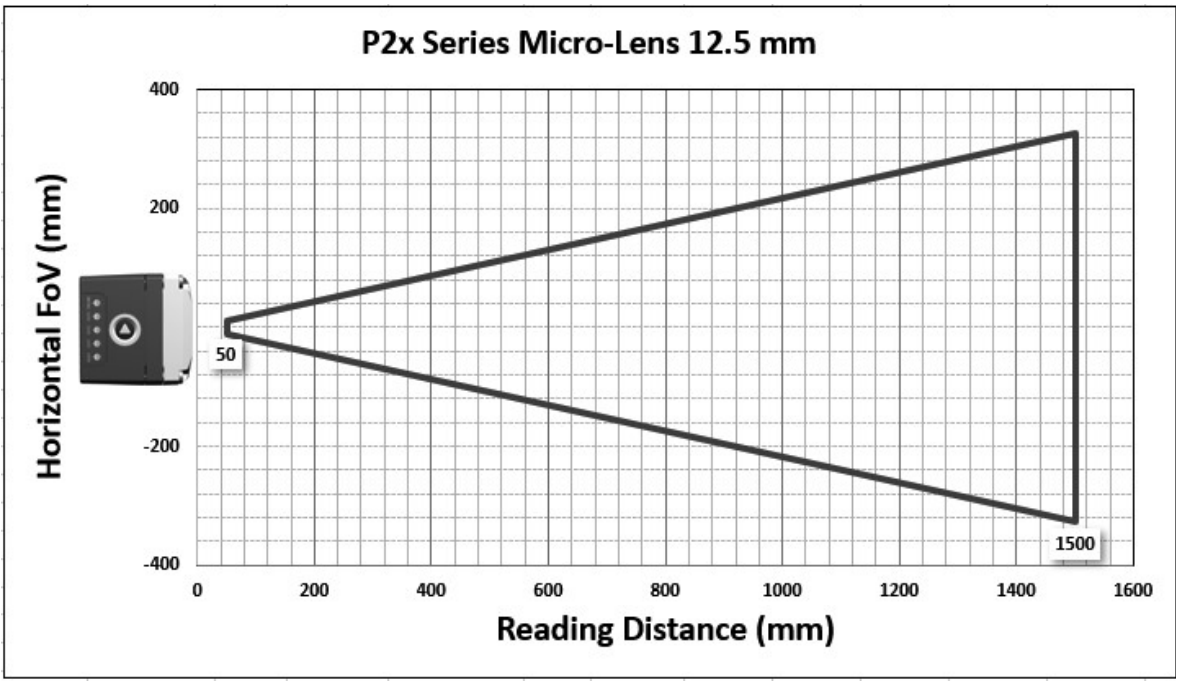
The following diagrams list the working distance for various cameras using a 14 LEDs illuminator or the spacer. The working distance using a 36 LEDs illuminator is 14.8 mm shorter. The working distance should be measured starting from the cover.

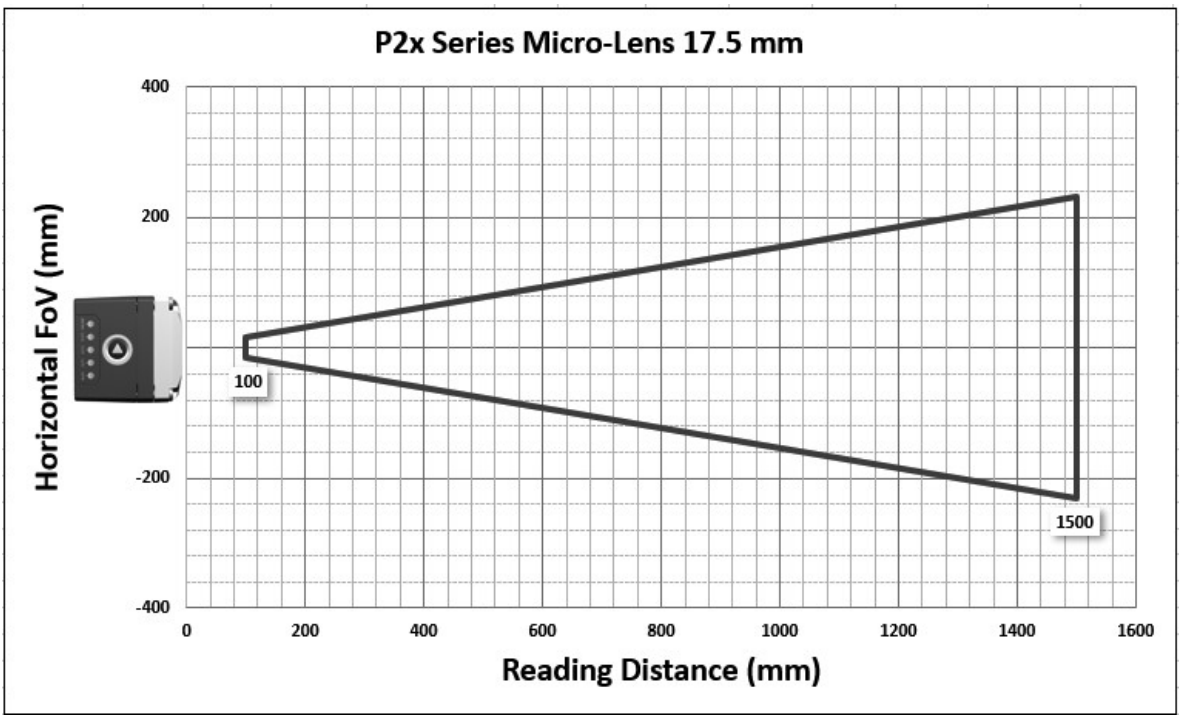
To calculate the Vertical Field of View use this formula: $V_{fov} = H_{fov} * 9/16$.






P2x Series Micro-Lens 8 mm
Horizontal FoV (mm)
600
400
200
-200
-400
-600
50
1200
0
200
400
600
800
1000
1200
1400
Reading Distance (mm)

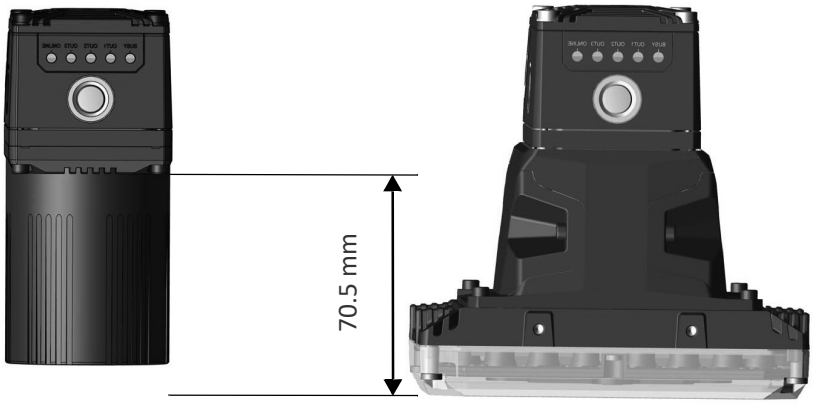

P2x Series Micro-Lens 12.5 mm
Horizontal FoV (mm)
400
200
-200
-400
50
1500
0
200
400
600
800
1000
1200
1400
1600
Reading Distance (mm)

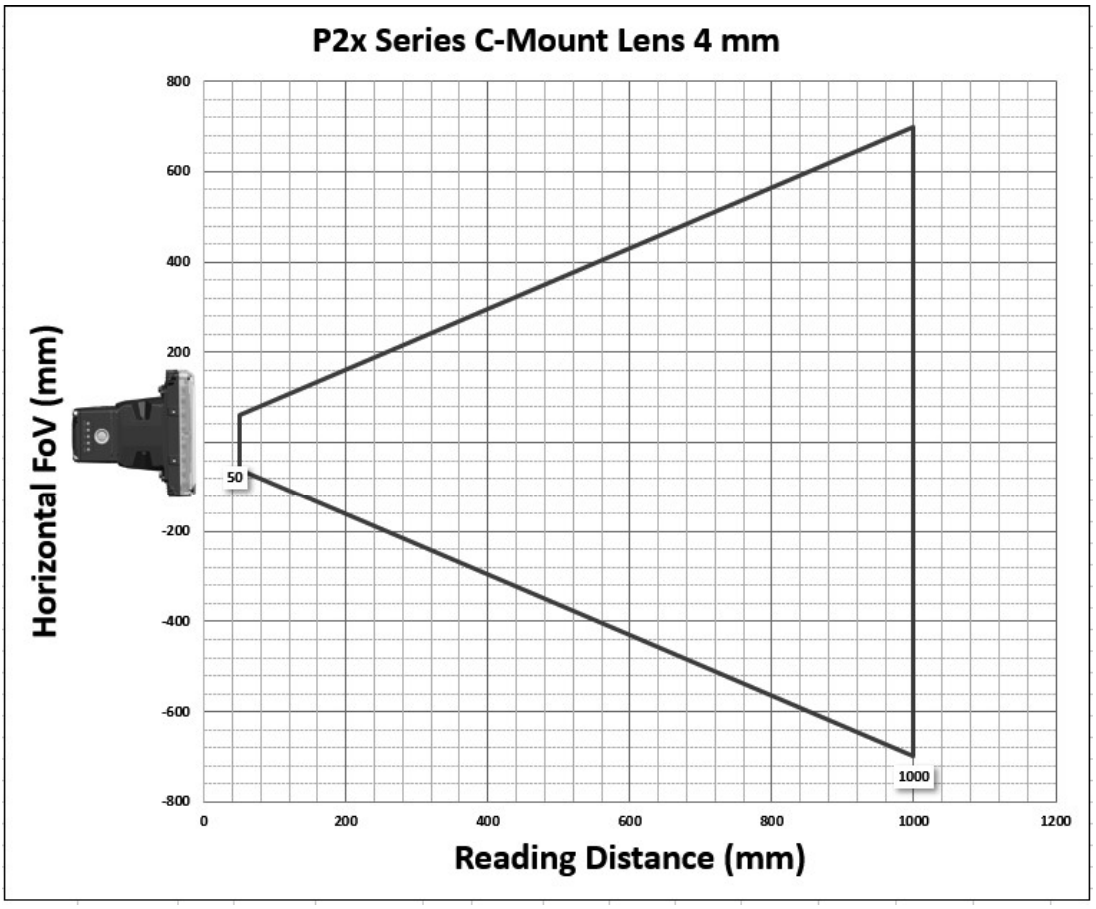


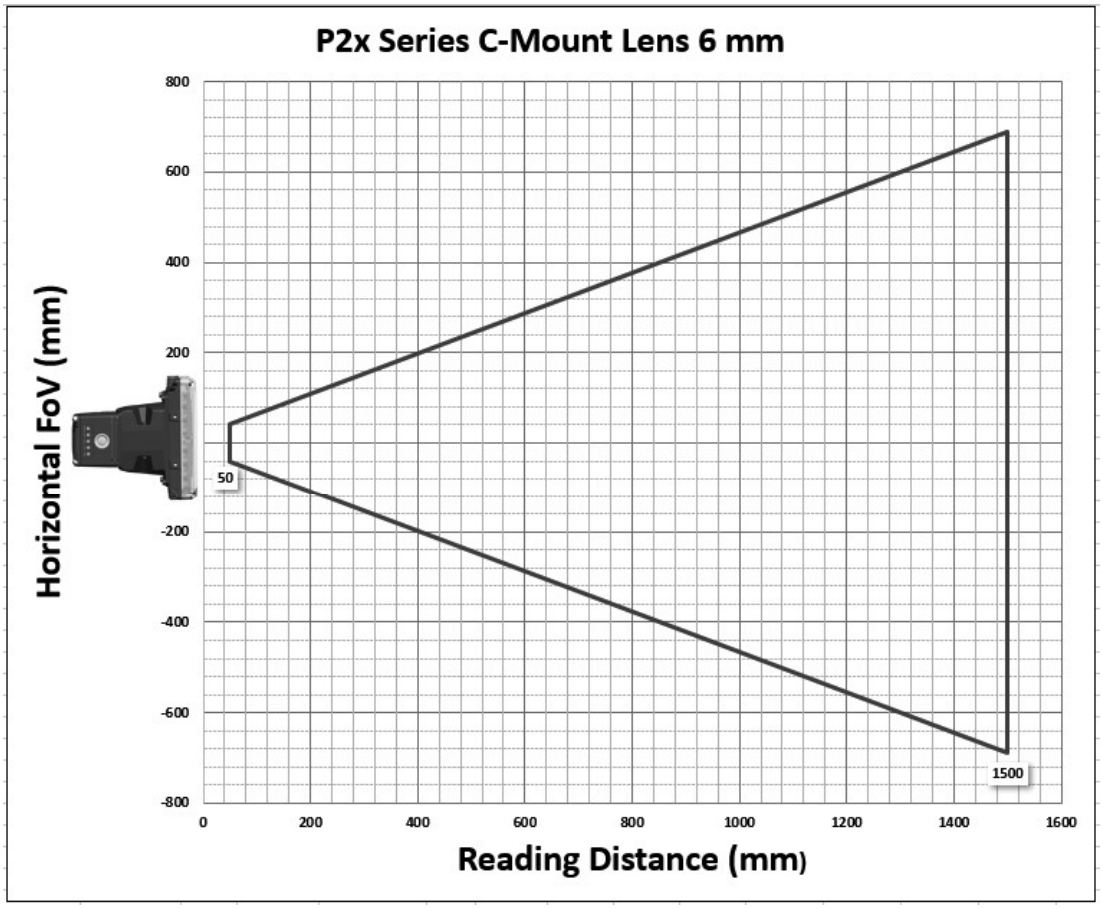
C-Mount Lens Field of View

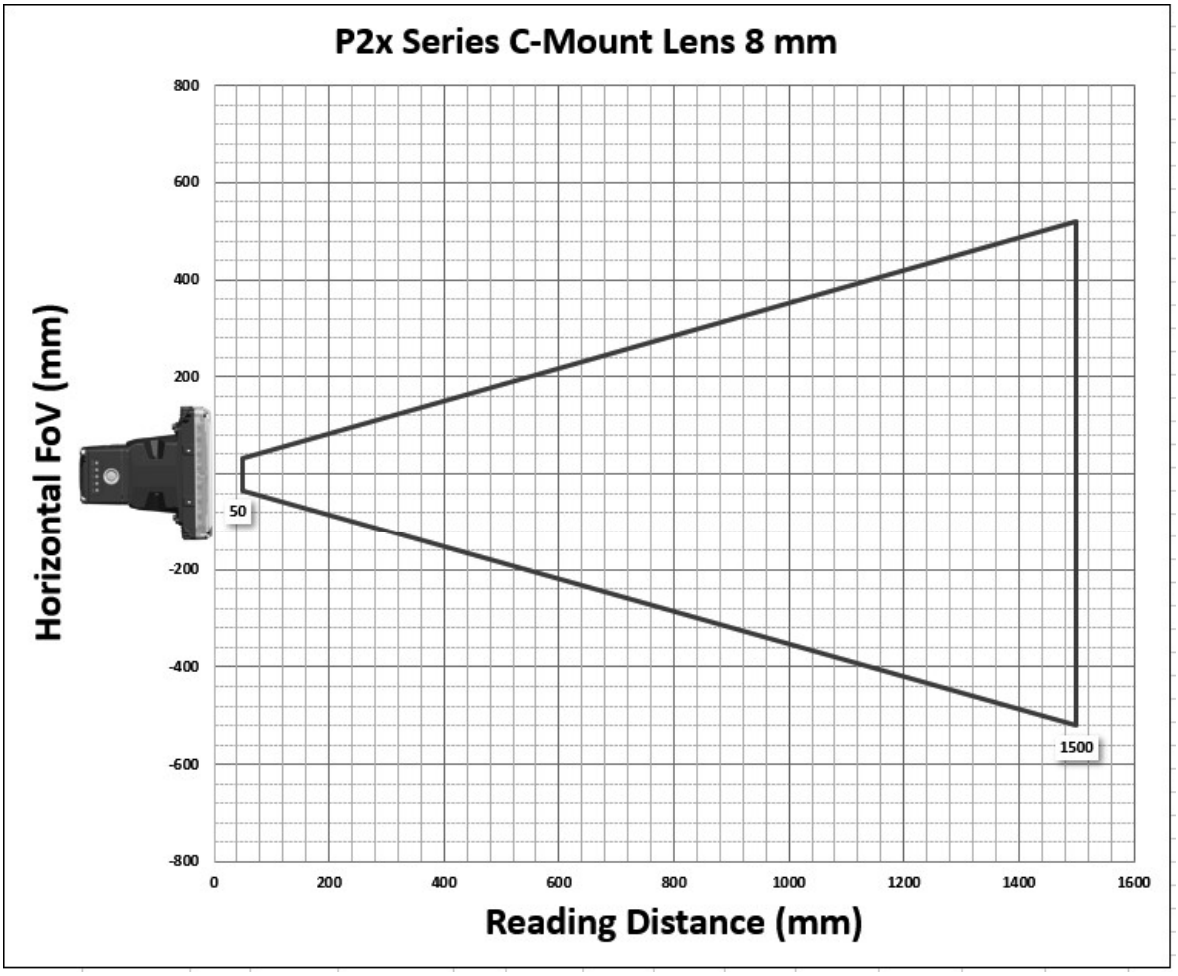
The following diagrams list the working distance for various cameras using a 36 LEDs illuminator. The working distance using an external illuminator is 70.5 mm longer. The working distance should be measured starting from the base cover.

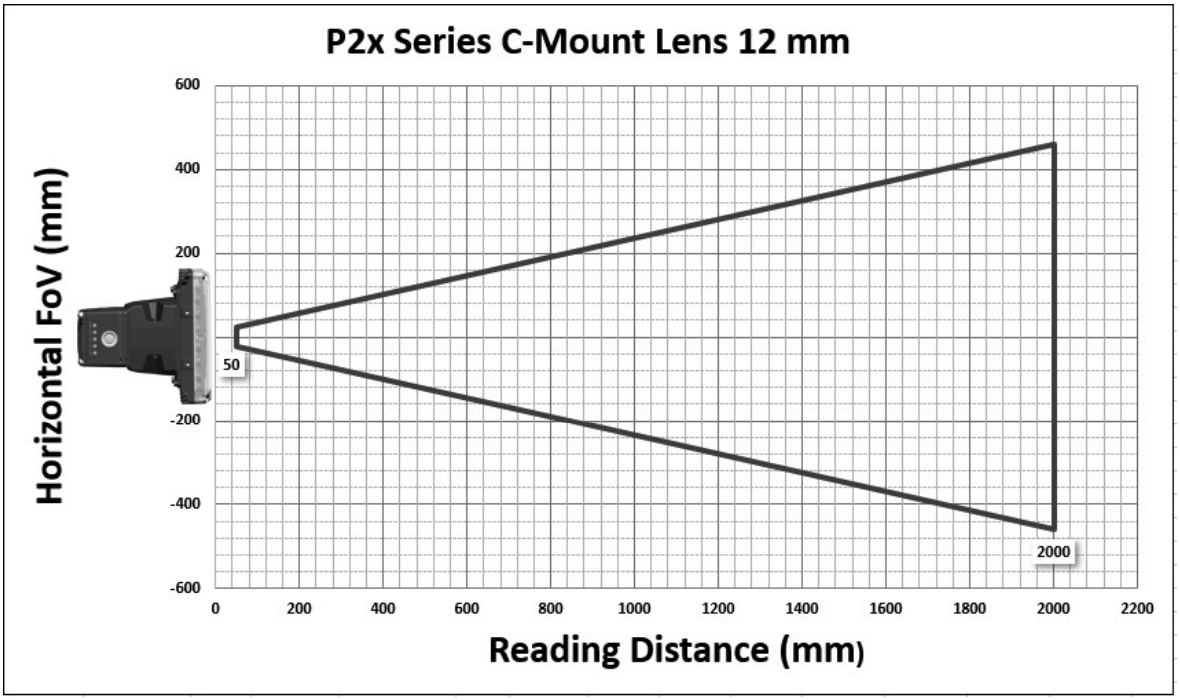
To calculate the Vertical Field of View use this formula: $V_{fov} = H_{fov} * 9/16$

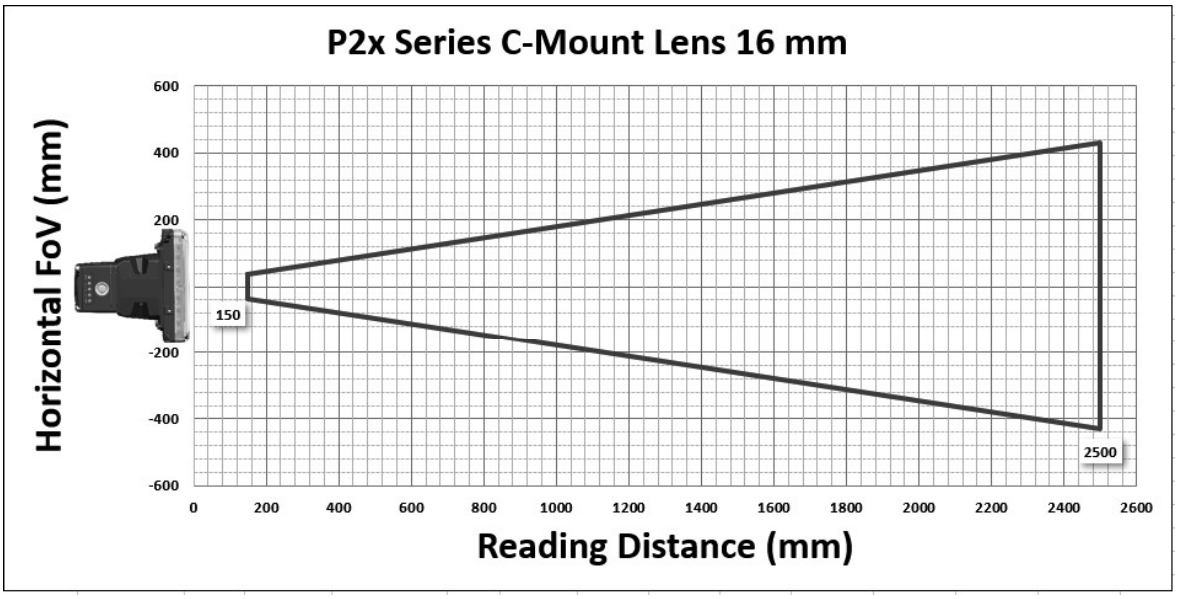


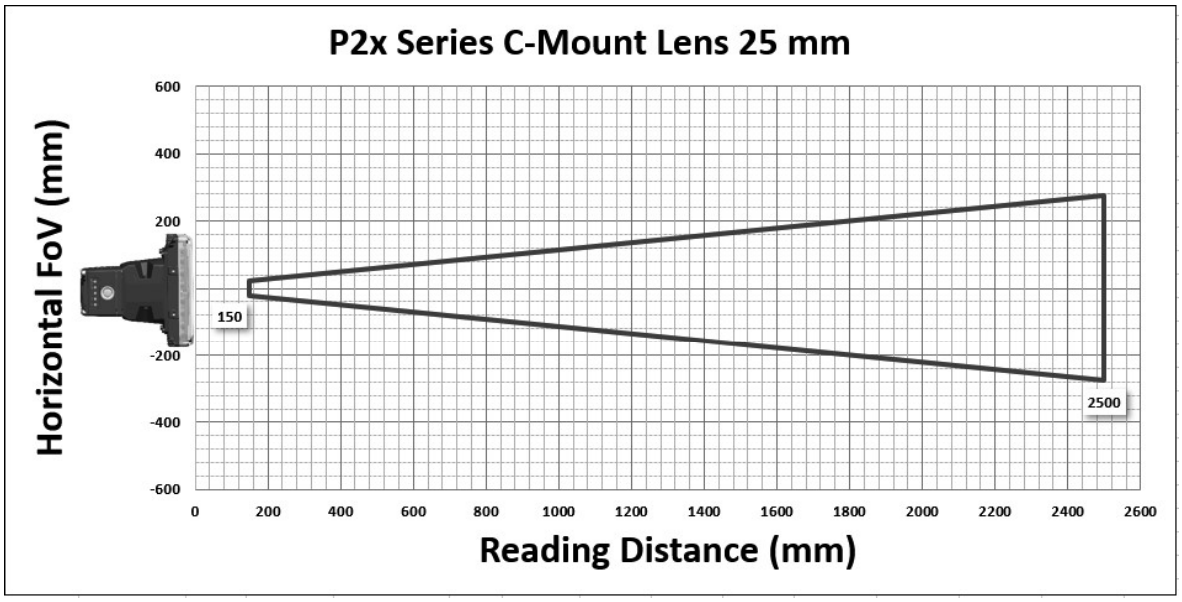

P2x Series C-Mount Lens 4 mm
Horizontal FoV (mm)
800
600
400
200
-200
-400
-600
-800
0
200
400
600
800
1000
1200
50
1000
Reading Distance (mm)

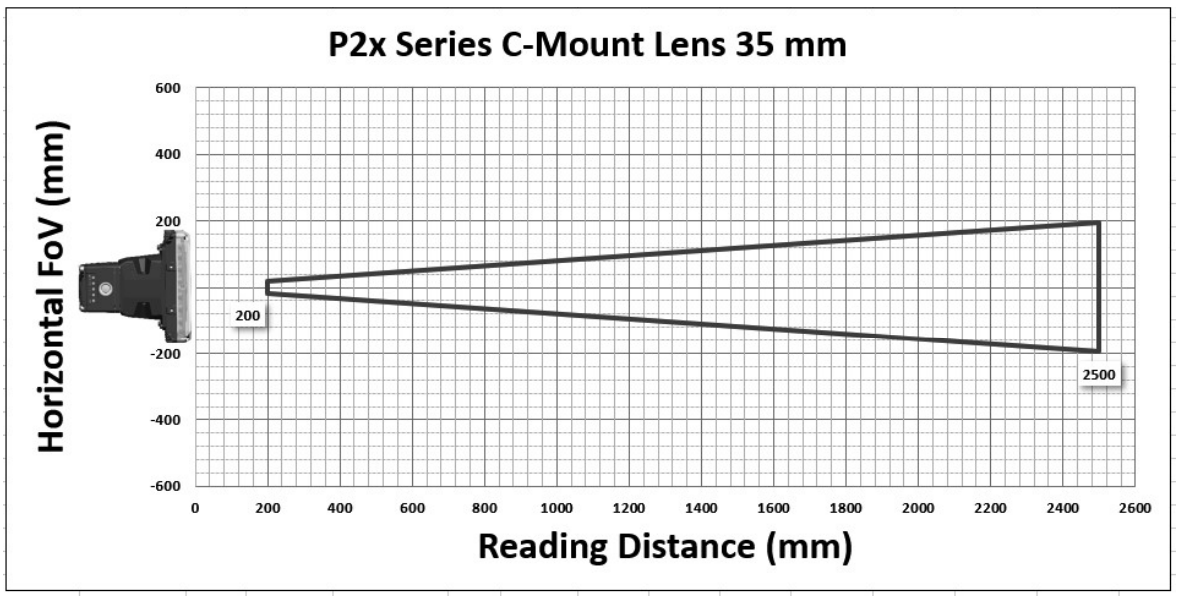

P2x Series C-Mount Lens 6 mm
Horizontal FoV (mm)
800
600
400
200
-200
-400
-600
-800
0
200
400
600
800
1000
1200
1400
1600
50
1500
Reading Distance (mm)


P2x Series C-Mount Lens 8 mm
Horizontal FoV (mm)
800
600
400
200
-200
-400
-600
-800
0
200
400
600
800
1000
1200
1400
1600
50
1500
Reading Distance (mm)


P2x Series C-Mount Lens 12 mm
Horizontal FoV (mm)
600
400
200
-200
-400
-600
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
50
2000
Reading Distance (mm)


P2x Series C-Mount Lens 16 mm
Horizontal FoV (mm)
600
400
200
-200
-400
-600
150
2500
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
Reading Distance (mm)


P2x Series C-Mount Lens 25 mm
Horizontal FoV (mm)
600
400
200
-200
-400
-600
150
2500
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
Reading Distance (mm)


P2x Series C-Mount Lens 35 mm
Horizontal FoV (mm)
600
400
200
-200
-400
-600
200
2500
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
Reading Distance (mm)

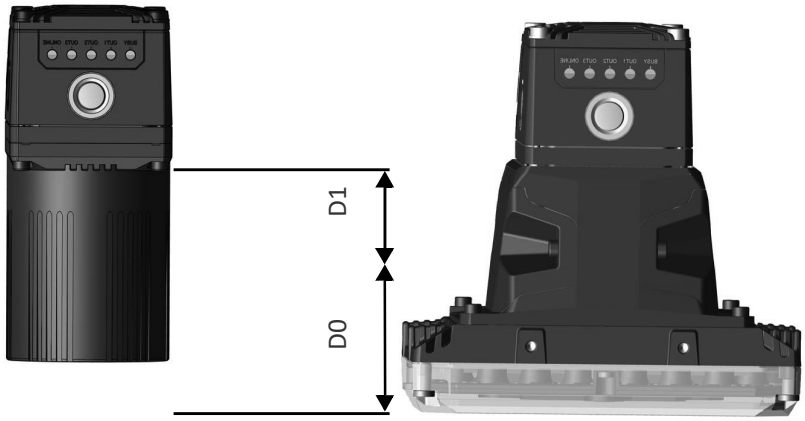
Optics Center using Optics Calculator

Optics Calculator is a VPM add-on that helps the user to calculate the FOV.

To calculate the FOV it is necessary to insert the working distance considering the lens center.

D0 = offset (in mm) from the lens center to the 36 LEDs illuminator cover.

D1= offset (in mm) from lens center to the base cover.



FOCAL LENGTH	D0	D1
4mm	40.4	30.1
6mm	41.1	29.4
8mm	49.6	20.9
12mm	54.8	15.7
16mm	66	4.5
25mm	59	11.5
35mm	55	15.5

Example:

Consider a P2x-Series Smart Camera mounting a 6mm lens and a 36 LED illuminator, if the distance from the cover to the object is 200mm the value to be used in the Optics Calculator is (200 + 41.1) mm = 241.1 mm

Consider now the same P2x Smart Camera mounting a 6mm lens and an external illuminator, the same object is at a distance of 270,5 mm from the base cover, hence the value to be used in the Optics Calculator is (270,5 - 29.4) mm = 241.1 mm