

# PMS-ZT0220-A

Telecentric Zoom Lens, 0.21× to 1.97×

Object-side telecentric zoom lens for sensors up to 1 inch: 0.21× to 1.97× at an 86 mm working distance that stays the same as the magnification changes. C-mount.

|                                               |                                  |
|-----------------------------------------------|----------------------------------|
| <b>0.21× – 1.97×</b><br>Optical magnification | <b>86 mm</b><br>Working distance |
| <b>1 inch</b><br>Max. sensor size             |                                  |



## Overview

An object-side telecentric zoom lens for sensors up to 1 inch: 0.21× to 1.97× at an 86 mm working distance. The conjugate distance and the working distance stay the same when the magnification changes, and any magnification between the minimum and the maximum can be used.

## Features

- Object-side telecentric design, without distortion within the depth of field
- Supports 1-inch sensors, keeping object-side resolution over a larger field of view
- Conjugate distance and working distance stay the same when the magnification changes
- Continuous telecentric zoom: every magnification between the minimum and the maximum is valid

## Specifications

| General               |                  |
|-----------------------|------------------|
| Optical magnification | 0.21× – 1.97×    |
| Working distance      | 86 mm            |
| Max. sensor size      | 1 inch           |
| Mount                 | C-mount          |
| Working temperature   | −10 °C to +50 °C |

## Optical performance

| Magnification | Resolution (μm) | F-number | TV distortion | Telecentricity (°) | Depth of field (mm) | N.A.  |
|---------------|-----------------|----------|---------------|--------------------|---------------------|-------|
| 0.21×         | 26.91           | 7.81     | −0.04%        | 0.02               | 6.99                | 0.014 |
| 0.3×          | 18.35           | 7.71     | 0.05%         | 0.02               | 3.43                | 0.019 |
| 0.4×          | 12.89           | 7.35     | 0.07%         | 0.01               | 1.84                | 0.027 |

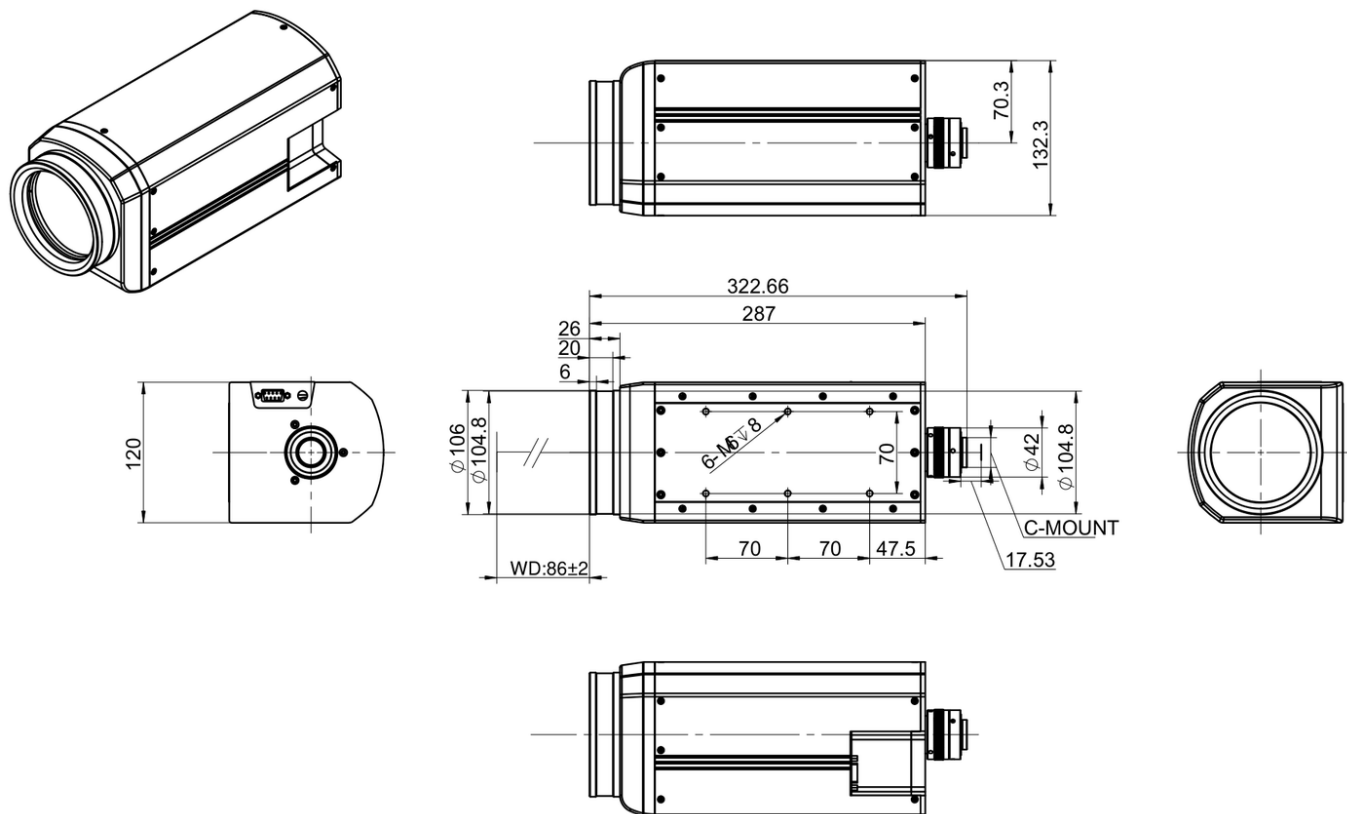
| Magnification | Resolution (μm) | F-number | TV distortion | Telecentricity (°) | Depth of field (mm) | N.A.  |
|---------------|-----------------|----------|---------------|--------------------|---------------------|-------|
| 0.5×          | 10.64           | 7.40     | 0.06%         | 0.01               | 1.18                | 0.034 |
| 0.6×          | 8.86            | 7.64     | 0.05%         | 0.01               | 0.85                | 0.039 |
| 0.7×          | 7.29            | 7.96     | 0.03%         | 0.01               | 0.65                | 0.044 |
| 0.8×          | 6.25            | 8.35     | 0.02%         | 0.02               | 0.52                | 0.048 |
| 0.9×          | 5.56            | 8.82     | 0.01%         | 0.07               | 0.44                | 0.051 |
| 1.0×          | 5.21            | 9.34     | 0.00%         | 0.12               | 0.37                | 0.054 |
| 1.1×          | 4.89            | 9.92     | -0.01%        | 0.18               | 0.32                | 0.056 |
| 1.2×          | 4.85            | 10.42    | -0.01%        | 0.23               | 0.29                | 0.058 |
| 1.3×          | 4.63            | 10.86    | -0.02%        | 0.27               | 0.26                | 0.060 |
| 1.4×          | 4.64            | 11.33    | -0.03%        | 0.31               | 0.23                | 0.062 |
| 1.5×          | 4.57            | 11.83    | -0.03%        | 0.34               | 0.21                | 0.064 |
| 1.6×          | 4.53            | 12.23    | -0.03%        | 0.36               | 0.19                | 0.065 |
| 1.7×          | 4.46            | 12.69    | -0.04%        | 0.39               | 0.17                | 0.067 |
| 1.8×          | 4.41            | 13.06    | -0.04%        | 0.41               | 0.16                | 0.069 |
| 1.9×          | 4.32            | 13.43    | -0.04%        | 0.43               | 0.15                | 0.071 |
| 1.97×         | 4.30            | 13.69    | -0.05%        | 0.44               | 0.14                | 0.072 |

**Object field (mm), width × height**

| Magnification | 1" sensor   | 2/3" sensor | 1/1.8" sensor | 1/2" sensor | 1/3" sensor |
|---------------|-------------|-------------|---------------|-------------|-------------|
| 0.21×         | 60.6 × 45.5 | 41.7 × 31.3 | 33.8 × 25.4   | 30.3 × 22.7 | 22.7 × 17.0 |
| 0.3×          | 42.7 × 32.1 | 29.4 × 22.0 | 23.9 × 17.9   | 21.4 × 16.0 | 16.0 × 12.0 |
| 0.4×          | 32.0 × 24.0 | 22.0 × 16.5 | 17.9 × 13.4   | 16.0 × 12.0 | 12.0 × 9.0  |
| 0.5×          | 25.6 × 19.2 | 17.6 × 13.2 | 14.3 × 10.7   | 12.8 × 9.6  | 9.6 × 7.2   |
| 0.6×          | 21.3 × 16.0 | 14.7 × 11.0 | 11.9 × 8.9    | 10.7 × 8.0  | 8.0 × 6.0   |
| 0.7×          | 18.3 × 13.7 | 12.6 × 9.4  | 10.2 × 7.7    | 9.1 × 6.9   | 6.9 × 5.1   |
| 0.8×          | 16.0 × 12.0 | 11.0 × 8.3  | 8.9 × 6.7     | 8.0 × 6.0   | 6.0 × 4.5   |
| 0.9×          | 14.2 × 10.7 | 9.8 × 7.3   | 7.9 × 6.0     | 7.1 × 5.3   | 5.3 × 4.0   |
| 1.0×          | 12.8 × 9.6  | 8.8 × 6.6   | 7.1 × 5.4     | 6.4 × 4.8   | 4.8 × 3.6   |
| 1.1×          | 11.6 × 8.7  | 8.0 × 6.0   | 6.5 × 4.9     | 5.8 × 4.4   | 4.4 × 3.3   |
| 1.2×          | 10.7 × 8.0  | 7.3 × 5.5   | 6.0 × 4.5     | 5.3 × 4.0   | 4.0 × 3.0   |
| 1.3×          | 9.8 × 7.4   | 6.8 × 5.1   | 5.5 × 4.1     | 4.9 × 3.7   | 3.7 × 2.8   |
| 1.4×          | 9.1 × 6.9   | 6.3 × 4.7   | 5.1 × 3.8     | 4.6 × 3.4   | 3.4 × 2.6   |
| 1.5×          | 8.5 × 6.4   | 5.9 × 4.4   | 4.8 × 3.6     | 4.3 × 3.2   | 3.2 × 2.4   |
| 1.6×          | 8.0 × 6.0   | 5.5 × 4.1   | 4.5 × 3.4     | 4.0 × 3.0   | 3.0 × 2.3   |

| Magnification | 1" sensor | 2/3" sensor | 1/1.8" sensor | 1/2" sensor | 1/3" sensor |
|---------------|-----------|-------------|---------------|-------------|-------------|
| 1.7×          | 7.5 × 5.6 | 5.2 × 3.9   | 4.2 × 3.2     | 3.8 × 2.8   | 2.8 × 2.1   |
| 1.8×          | 7.1 × 5.3 | 4.9 × 3.7   | 4.0 × 3.0     | 3.6 × 2.7   | 2.7 × 2.0   |
| 1.9×          | 6.7 × 5.1 | 4.6 × 3.5   | 3.8 × 2.8     | 3.4 × 2.5   | 2.5 × 1.9   |
| 1.97×         | 6.5 × 4.9 | 4.5 × 3.4   | 3.6 × 2.7     | 3.3 × 2.4   | 2.4 × 1.8   |

## Dimension drawing



*PMS-ZT0220-A dimension drawing (mm).*

## Request a quotation

Tell us about your camera and the parts you inspect, and we will put together the PMS-ZT0220-A with the adapter tubes, lens attachments and illumination it needs.

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