Line scan lens

Makro-Symmar 5.6/120-0.75x

Wherever complex web and surface inspections are concerned, the line scan image capture method is used in most cases. Due to the principle used, this method requires a very careful choice of camera and an optimally adapted lens in order to achieve maximum system performance. It is essential to observe important application-specific and physical parameters: the size of the CCD or CMOS imaging sensor in the camera defines the minimum required image circle of the lens.

Key Features

- Very high optical image quality in the large sensor range
- Vibration-insensitive for stable optical performance
- Reverse position of the lens possible to enlarge the magnification range
- Lockable distance and aperture settings
- Use in best azimuth position possible
- Industry-compatible V-mount interface
- 100% quality control guarantees reliability and constant quality
- Low maintenance requirements, therefore high system availability

Applications

- Web and surface inspections
- Quality control
- FPD inspection
- PCB inspection
- OLED inspection
- Line scan applications

Technical Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-number</td>
<td>5.6</td>
</tr>
<tr>
<td>Focal length</td>
<td>120.2 mm</td>
</tr>
<tr>
<td>Image circle</td>
<td>86 mm</td>
</tr>
<tr>
<td>Magnification</td>
<td>0.75</td>
</tr>
<tr>
<td>Transmission</td>
<td>400 - 1000 nm</td>
</tr>
<tr>
<td>Interface</td>
<td>V-Mount</td>
</tr>
<tr>
<td>Weight</td>
<td>170 gr.</td>
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<tr>
<td>Option</td>
<td>Optical filter</td>
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</tbody>
</table>

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Makro-Symmar 5.6/120-0.75

M-SR 5.6/120 BETA -0.625...-0.875

Modulation with reference to the relative image height

- Wavelength $\lambda$ [nm]: 555 655 695 505 655 455 405
- Spectral weighting [%]: 19.6 25.7 22.2 15.7 12.4 6.7
- Spatial frequency $\nu$ [1/mm]: 20 40 80

Format: [mm x mm]: 90.0 X 0.0

Diagonal $2\nu'$ [mm]: 90.0

- radial
- tangential

Focusing: $MTF_{\nu max}$ at $f$ = 5.6, $R = 80$ 1/mm, $\nu' = 0$
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RELATIVE ILLUMINATION

The relative illumination is shown for the given focal distances or magnifications.

\[ \beta' = \beta \frac{f}{F} \]

\[ \beta' = -0.8250 \quad u_{op} = 45.0 \quad \gamma' = 50.7 \]

\[ \beta' = -0.7500 \quad u_{op} = 45.0 \quad \gamma' = 48.0 \]

\[ \beta' = -0.8750 \quad u_{op} = 45.0 \quad \gamma' = 48.2 \]

DISTORTION

Distortion is shown for the given focal distances or magnifications. Positive values indicate pincushion distortion and negative values barrel distortion.

\[ \beta' = -0.8250 \quad u_{op} = 45.0 \quad \gamma' = 50.7 \]

\[ \beta' = -0.7500 \quad u_{op} = 45.0 \quad \gamma' = 48.0 \]

\[ \beta' = -0.8750 \quad u_{op} = 45.0 \quad \gamma' = 48.2 \]

TRANSMITTANCE

Relative spectral transmittance is shown with reference to wavelength.