

HYPERSPECTRAL OBJECTIVE LENSES

SPECIM provides high quality objective lenses, optimized to produce uniform and sharp images in the broad spectral ranges covered by hyperspectral imaging systems. All the lenses employ broadband AR coatings to minimize straylight and flare. Build quality is solid with durable metal construction and no plastic parts. Lens focus adjustment is lockable to prevent accidental changes in harsh environments. These prime lenses cover the focal lengths from wide to moderate telephoto with F-numbers matching our spectral cameras.

VNIR 400 - 1000 nm

| OPTICAL CHARACTERISTICS | | | | | | | | | |
|----------------------------|---|----------------------|----------------------|-----------------------|--|--|--|--|--|
| Fore lens | OLEWide ** | OLE18 | OLE23 | OLE140 | | | | | |
| Focal length | 9 mm | 18 mm | 23 mm | 140 mm | | | | | |
| F-number (fixed) | 2.4 | 2.4 | 2.4 | 2.8 | | | | | |
| Spatial image size (max) | 14.4 mm | 12.4 mm | 14.4 mm | 12.4 mm | | | | | |
| Spectral range | Corrected for the full 400 – 1000 nm range Multilayer AR –coated for 400 – 1000 nm | | | | | | | | |
| Optical output | Telecentric | | | | | | | | |
| RMS Spot diameter * | 14.8 µm | 17.4 µm | 15.4 μm | 10 µm | | | | | |
| Transmission | > 85% | | | | | | | | |
| Minimum working distance | | 10 m | | | | | | | |
| MECHANICAL CHARACTERISTICS | | | | | | | | | |
| Dimensions | (L) 49 x diam. 47 mm | (L) 48 x diam. 53 mm | (L) 43 x diam. 41 mm | (L) 162 x diam. 65 mm | | | | | |
| Body | Anonized aluminium | | | | | | | | |
| Mount | Standard C-mount | | | | | | | | |

* Average over image and all wavelengths.

** In this wide field-of-view lens the pixel size on the target increases towards the edges of the field of view due to spatial distortion, and thus the actual focal length dependes on the spatial image size (detector size) used. On request SPECIM provides calibration file for the distortion in order to correct it in image processing.

For more information please contact SPECIM.









OLE18 fore lens

OLE23 fore lens



NIR 900 - 1700 nm and SWIR 900 - 2500 nm

| OPTICAL CHARACTERISTICS | | | | | | | | |
|----------------------------|--|-------------------------|---------------------------|---------------------------|-------------------------|--------------------------|--|--|
| Fore lens | OLES9 *** | OLES15 | OLES22 | OLES30 | OLES56 | OLESMacro | | |
| Focal length | 9 mm | 15 mm | 22.5 mm | 30.7 mm | 56 mm | 73.3 mm ** | | |
| F-number (fixed) | 2.0 | 2.1 | 2.0 | 2.0 | 2.0 | 4.0 | | |
| Spatial image size (max) | 12.8 mm | 9.6 mm | 12.8 mm | 12.8 mm | 9.6 mm | 10.0 mm | | |
| Spectral range | Corrected for the full 900 – 2500nm range Multilayer AR –coated for 900 – 2500 nm | | | | | | | |
| Optical output | Telecentric | | | | | | | |
| RMS Spot diameter * | 16.3 µm | 10.1 µm | 17.6 µm | 16.8 µm | 12.9 µm | 25.4 μm | | |
| Transmission | > 82% | | | | | | | |
| Minimum working distance | 50cm (30 cm) | | | | | 10 cm | | |
| MECHANICAL CHARACTERISTICS | | | | | | | | |
| Dimensions | (L) 94.3 x diam. 45 mm | (L) 60 x diam. 45 mm | (L) 48.5 x diam. 47 mm | (L) 41.6 x diam. 53 mm | (L) 84 x diam. 53 mm | (L) 173 x diam. 46 mm | | |
| Body | Anonized aluminium | | | | | | | |
| Mount | Proprietary mount | | Standard C-mount | Proprietary mount | | | | |

* Average over image and all wavelengths. ** OLESMarcro images the target in 1:1 ratio to the camera pixel size. *** In this wide field-of-view lens the pixel size on the target increases towards the edges of the field of view due to spatial distortion, and thus the actual focal length dependes on the spatial image size (detector size) used. On request SPECIM provides calibration file for the distortion in order to correct it is image and actions. it in image processing.

MWIR 3000 - 5000 nm and LWIR 8000 - 12000 nm





OLES30 fore lens

OLES22 fore lens



OLESMacro

| OPTICAL CHARACTERISTICS | | | | | | | | | |
|----------------------------|--|-------------------------------------|--|-------------------------|-------------------------|--|--|--|--|
| Fore lens | OLEM23 | OLEM43 | OLEL32 | OLEL41 | OLEL43 | | | | |
| Focal length | 23.4 mm | 43 mm | 31.9 mm | 41.3 mm | 43 mm | | | | |
| F-number (fixed) | 3.0 | 3.8 | 3.7 | 2.5 | 3.8 | | | | |
| Spatial image size | 19.5 mm | 18.3 mm | 18.4 mm | 24 mm | 18.4 mm | | | | |
| Spectral range | Corrected and mul for the full 3 00 | tilayer AR –coated 00 – 5 000 nm | Corrected and multilayer AR -coated for the full 8 000 - 12 000 nm | | | | | | |
| RMS Spot diameter * | 11.5 µm ** | 19.0 µm | 30 µm ** | 37 µm | 34,5 μm ** | | | | |
| Transmission | > 94% | | | | | | | | |
| Minimum working distance | 50 cm (30 cm) | | | | | | | | |
| MECHANICAL CHARACTERISTICS | | | | | | | | | |
| Dimensions | (L) 30 x diam. 28 mm | (L) 50 x diam. 33 mm | (L) 52 x diam. 42 mm | (L) 46 x diam. 46 mm | (L) 50 x diam. 33 mm | | | | |
| Body | Stainless steel/anonized aluminium | | | | | | | | |
| Mount | Proprietary mount | | | | | | | | |



OLEL43 fore lens

* Average over image and all wavelengths.

** Diffraction limited.