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## vicotar® Telecentric Lens - TO88/11.0-140-V-BW

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|---------------------------|--------------------------------------------------------------------------------------------------------------|
| <b>Short description:</b> | Telecentric Lens, C-Mount, Sensor opt. 2/3", aperture F6 - F22, blue                                         |
| <b>Order number:</b>      | 2-05-812                                                                                                     |
| <b>EAN:</b>               | 4251692621639                                                                                                |
| <b>Actual Notice:</b>     | <b>Also available with fixed aperture on request.</b><br>(F-numbers in the range as for adjustable aperture) |



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### Characteristics

- telecentric measurement objective with object-sided telecentric beam path
  - color corrected for the visible spectral range and near infrared
  - color correction extended deep into the blue spectral range
  - very well suited for blue LEDs including "Deep Blue" LEDs
  - thus especially suitable for white LEDs, as these have a strong blue light component
  - high resolution, low lateral chromatic aberration, low distortion, low telecentric error
  - adjustable aperture with identification of the aperture numbers, arrestable
  - robust industrial design
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## Technical data

|                                              |                     |
|----------------------------------------------|---------------------|
| Image scale                                  | 0.125               |
| Spectral range                               | 400 nm - 900 nm     |
| Working distance                             | 140 mm              |
| Camera distance (object-camera flange)       | 345.9 mm            |
| Object field diagonal (max.)                 | 88 mm               |
| Sensor format (opt.)                         | 2/3"                |
| Image field diagonal (max.)                  | 11 mm               |
| Suitable for camera resolution               | 18.8 MPixel         |
| Recommended pixel size                       | 1.76 µm             |
| Aperture                                     | variable (F6 - F22) |
| Lens mount                                   | C-Mount             |
| Filter thread, object-side                   | M100 x 1            |
| Filter thread, camera-side                   | M20.5 x 0.5         |
| Weight                                       | 1090 g              |
| Usable object field with:                    |                     |
| • 2/3" sensor (8.8 x 6.6 mm <sup>2</sup> )   | 70.4 mm x 52.8 mm   |
| • 1/1.8" sensor (7.1 x 5.4 mm <sup>2</sup> ) | 56.8 mm x 43.2 mm   |
| • 1/2" sensor (6.4 x 4.8 mm <sup>2</sup> )   | 51.2 mm x 38.4 mm   |
| • 1/3" sensor (4.8 x 3.6 mm <sup>2</sup> )   | 38.4 mm x 28.8 mm   |

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## Notices

The lightings combination products shown are a selection. Depending on the application, other colors and light source types can also be used.

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## Can be combined with

| Order number                      | Title                 | Description                                                                 |
|-----------------------------------|-----------------------|-----------------------------------------------------------------------------|
| <b><i>TZB95-UDC-a Serie</i></b>   |                       |                                                                             |
| 1-10-951                          | TZB95-B470/UDC/-a     | telecentric light, blue, If diameter: 95 mm, flashable by flash controller  |
| 1-10-952                          | TZB95-W5K7/UDC/-a     | telecentric light, white, If diameter: 95 mm, flashable by flash controller |
| 1-10-953                          | TZB95-IR880/UDC/-a    | telecentric light, IR850, If diameter: 95 mm, flashable by flash controller |
| 1-10-950                          | TZB95-R625/UDC/-a     | telecentric light, red, If diameter: 95 mm, flashable by flash controller   |
| 1-10-954                          | TZB95-G525/UDC/-a     | telecentric light, green, If diameter: 95 mm, flashable by flash controller |
| <b><i>TZB95 series</i></b>        |                       |                                                                             |
| 1-10-383                          | TZB95-B470-24V        | telecentric light, blue, If diameter: 95 mm, static, cable open-ended       |
| 1-10-382                          | TZB95-W5K7-24V        | telecentric light, white, If diameter: 95 mm, static, cable open-ended      |
| 1-10-381                          | TZB95-IR880-24V       | telecentric light, IR850, If diameter: 95 mm, static, cable open-ended      |
| 1-10-380                          | TZB95-R625-24V        | telecentric light, red, If diameter: 95 mm, static, cable open-ended        |
| 1-10-384                          | TZB95-G525-24V        | telecentric light, green, If diameter: 95 mm, static, cable open-ended      |
| <b><i>R-CLR-100-SL series</i></b> |                       |                                                                             |
| 1-33-012                          | R-CLR-100x73-B470-SL  | ring light, blue, coaxial, If diameter: 73/100 mm, smart light technology   |
| <b><i>RK3652-24V series</i></b>   |                       |                                                                             |
| 1-29-702                          | RK3652-B470-24V/C     | ring light, blue, coaxial, If diameter: 73/100 mm, controlled, pot.: 0-10V, |
| <b><i>R-CLR-132-SL series</i></b> |                       |                                                                             |
| 1-33-017                          | R-CLR-132x104-B470-SL | ring light, blue, coaxial, If diameter: 104/132 mm, smart light technology  |
| <b><i>RK5268-24V series</i></b>   |                       |                                                                             |

| Order number | Title             | Description                                                                  |
|--------------|-------------------|------------------------------------------------------------------------------|
| 1-29-802     | RK5268-B470-24V/C | ring light, blue, coaxial, If diameter: 104/132 mm, controlled, pot.: 0-10V, |

## Accessories for Telecentric Lenses - TO88/11.0-140-V-BW

| Order number                  | Title                        | Description                                                                  |
|-------------------------------|------------------------------|------------------------------------------------------------------------------|
| <b>Adjustment Aids</b>        |                              |                                                                              |
| 5-10-112                      | Adjustment aid 10            | for easy adjustment to 10 mm depth of field, for image scale 0.5 - 0.2       |
| <b>Lens mount</b>             |                              |                                                                              |
| 2-91-331                      | Mounting angle               | Holder for telecentric lenses and lightings with with threaded hole M5       |
| 2-91-332                      | Mounting angle SH            | Holder for telecentric lenses and lightings with with slotted hole for M4-M6 |
| 2-91-333                      | Mounting plate SH            | Holder for telecentric lenses and lightings with with slotted hole for M4-M6 |
| 2-91-330                      | Lens Holder d45 wide         | Holder for telecentric lenses and lightings with d = 45 mm, width = 32 mm    |
| 2-91-334                      | Mounting Bracket TO88        | Holder for telecentric lenses of the series TO88 with threaded hole M5       |
| <b>Extension tubes</b>        |                              |                                                                              |
| 2-90-415                      | Extension ring 0.5 mm        | 26 x 31 x 0.5 reduces the minimum object distance (MOD)                      |
| 2-90-416                      | Extension ring 1.0 mm        | 26 x 31 x 1.0 reduces the minimum object distance (MOD)                      |
| 2-90-419                      | Extension ring 0.1 mm        | 25.5 x 29 x 0.1 reduces the minimum object distance (MOD)                    |
| 2-90-420                      | Extension ring 0.2 mm        | 25.5 x 29 x 0.2 reduces the minimum object distance (MOD)                    |
| <b>Thread adapter c-mount</b> |                              |                                                                              |
| 5-00-011                      | Thread adapter C-Mount-M42   | Adapter for mounting of lenses with C-mount on cameras with M42x1 mount      |
| 2-90-414                      | CS to C-mount adapter 5.0 mm | for connecting C-mount lenses with CS-mount cameras, length: 5 mm            |

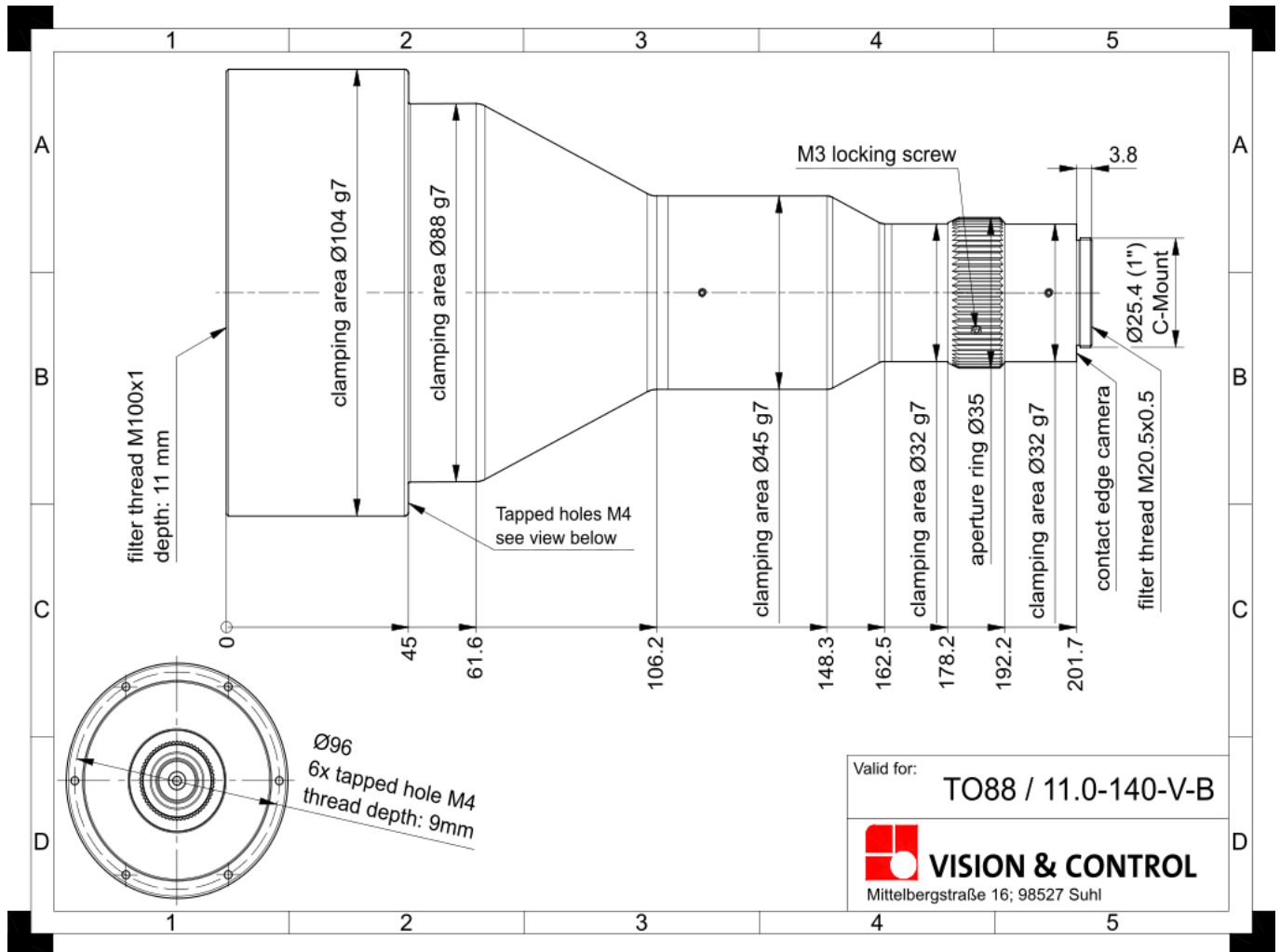
| Order number                                   | Title                       | Description                                                                      |
|------------------------------------------------|-----------------------------|----------------------------------------------------------------------------------|
| <b>Daylight blocking filter</b>                |                             |                                                                                  |
| 2-91-131                                       | IR filter M20.5x0.5         | long-pass filter from 830 nm, daylight absorbing filter, filter thread M20.5x0.5 |
| 2-91-136                                       | IR filter M100x1            | long-pass filter from 830 nm, daylight absorbing filter, filter thread M100x1    |
| <b>Polarising filters</b>                      |                             |                                                                                  |
| 2-91-148                                       | Pole filter M105x1          | linear polarizing filter, range 420 nm - 780 nm, filter thread M105x1            |
| <b>Colour filter blue</b>                      |                             |                                                                                  |
| 2-91-292                                       | Colour filter blue M100x1   | band-pass filter, range 350 nm - 600 nm, filter thread M100x1                    |
| <b>UV Cut-Off Filter</b>                       |                             |                                                                                  |
| 2-91-209                                       | UV blocking filter M100x1   | long-pass filter from 350 nm, usable as protective glass, filter thread M100x1   |
| <b>Colour filter red</b>                       |                             |                                                                                  |
| 2-91-259                                       | Colour filter red M20.5x0.5 | long-pass filter from 630 nm, red, filter thread M20.5x0.5                       |
| 2-91-264                                       | Colour filter red M100x1    | long-pass filter from 630 nm, red, filter thread M100x1                          |
| <b>Colour filter green</b>                     |                             |                                                                                  |
| 2-91-305                                       | Colour filter green M100x1  | band-pass filter, range 430 nm - 620 nm, filter thread M100x1                    |
| <b>Colour filter yellow</b>                    |                             |                                                                                  |
| 2-91-281                                       | Colour filter yellow M100x1 | long-pass filter from 530 nm, yellow, filter thread M100x1                       |
| <b>Filter adapter</b>                          |                             |                                                                                  |
| 2-91-338                                       | Filter adapter M100-M105    | step-up ring for use of a M105x1 filter on a M100x1 filter thread                |
| <b>Adapters for attaching lights to lenses</b> |                             |                                                                                  |
| 1-29-774                                       | Adapter ring d73 - M100x1   | for R-CLR-100x73 und RK3652, for attachment to lenses with filter thread M100x1  |

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| Order number                  | Title                      | Description                                                                      |
|-------------------------------|----------------------------|----------------------------------------------------------------------------------|
| 1-29-872                      | Adapter ring d104 - M100x1 | for R-CLR-132x104 and RK5268, for attachment to lenses with filter thread M100x1 |
| <b>Beam splitter STE60x60</b> |                            |                                                                                  |
| 1-20-050                      | STE60x60-VIS               | Beam splitter unit for coaxial light system, optimized for 450-700 nm            |
| 1-20-025                      | Adapter STE60x60 - TZO104  | Attachment of the STE60x60 to telecentric lenses and lightings with d= 104 mm    |

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## Drawings



Dimensional drawing in mm