

# Telecentric Lenses

## SE-65/SE-110 series

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CCS telecentric lens

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### Object-side telecentric lenses supporting a wide variety of applications beyond just dimension measuring

**SE-65 series (WD 65 mm)**



Straight type  
0.8x to 4x

Coaxial type  
0.8x to 4x

**SE-110 series (WD 110 mm)**



Straight type  
0.8x to 4x

Coaxial type  
0.8x to 4x

### SE-65/SE-110 series specifications

#### Coaxial type

Model name	SE-65VT08	SE-65VT10	SE-65VT15	SE-65VT20	SE-65VT40	SE-110VT08	SE-110VT10	SE-110VT15	SE-110VT20	SE-110VT40
Optical magnification	0.8x±5%	1.0x±5%	1.5x±5%	2.0x±5%	4.0x±5%	0.8x±5%	1.0x±5%	1.5x±5%	2.0x±5%	4.0x±5%
WD	67.7±2 mm	65.2±2 mm	65.0±2 mm	65.1±2 mm	65.1±2 mm	110.4±3.3 mm	110.0±3.3 mm	114.1±3.4 mm	110.0±3.3 mm	110.0±3.3 mm
Depth of field *1	1.85 mm	1.33 mm	0.59 mm	0.33 mm	0.13 mm	2 mm	1.6 mm	0.86 mm	0.65 mm	0.2 mm
Resolution *2	12.4 μm	11.2 μm	7.5 μm	5.6 μm	4.3 μm	13.4 μm	13.4 μm	10.8 μm	10.8 μm	6.6 μm
NA	0.027	0.030	0.045	0.060	0.078	0.025	0.025	0.031	0.031	0.051
Actual F-number (Fe)	14.9	16.8	16.7	16.7	25.4	16.0	19.9	24.0	32.0	39.5
TV distortion	-0.027%	-0.010%	-0.017%	-0.013%	+0.006%	-0.05%	-0.05%	+0.01%	-0.01%	+0.01%
Weight	50 g	54 g	37 g	38 g	40 g	54 g	56 g	48 g	50 g	50 g
Mount	C mount					C mount				
Maximum applicable image size	1/1.8 inch					1/1.8 inch				
Physical distance (O/I)	164.6 mm	172.1 mm	133.3 mm	135.8 mm	147 mm	211 mm	213.9 mm	208 mm	216.1 mm	212.5 mm

\*1: The depth of field is a value calculated using 40 μm as the permissible circle of confusion.

\*2: The resolution is a value calculated using a 550 nm wavelength. The specifications above are values based on the optical design. Differences between individual devices may occur due to assembly accuracy, etc.

#### Straight type

Model name	SE-65ST08	SE-65ST10	SE-65ST15	SE-65ST20	SE-65ST40	SE-110ST08	SE-110ST10	SE-110ST15	SE-110ST20	SE-110ST40
Optical magnification	0.8x±5%	1.0x±5%	1.5x±5%	2.0x±5%	4.0x±5%	0.8x±5%	1.0x±5%	1.5x±5%	2.0x±5%	4.0x±5%
WD	67.7±2 mm	65.2±2 mm	65.0±2 mm	65.1±2 mm	65.1±2 mm	110.4±3.3 mm	110.0±3.3 mm	114.1±3.4 mm	110.0±3.3 mm	110.0±3.3 mm
Depth of field *1	1.85 mm	1.33 mm	0.59 mm	0.33 mm	0.13 mm	2 mm	1.6 mm	0.86 mm	0.65 mm	0.2 mm
Resolution *2	12.4 μm	11.2 μm	7.5 μm	5.6 μm	4.3 μm	13.4 μm	13.4 μm	10.8 μm	10.8 μm	6.6 μm
NA	0.027	0.030	0.045	0.060	0.078	0.025	0.025	0.031	0.031	0.051
Actual F-number (Fe)	14.9	16.8	16.7	16.7	25.4	16.0	19.9	24.0	32.0	39.5
TV distortion	-0.027%	-0.010%	-0.017%	-0.013%	+0.006%	-0.05%	-0.05%	+0.01%	-0.01%	+0.01%
Weight	45 g	49 g	32 g	33 g	35 g	49 g	51 g	43 g	45 g	45 g
Mount	C mount					C mount				
Maximum applicable image size	1/1.8 inch					1/1.8 inch				
Physical distance (O/I)	164.6 mm	172.1 mm	133.3 mm	135.8 mm	147 mm	211 mm	213.9 mm	208 mm	216.1 mm	212.5 mm

\*1: The depth of field is a value calculated using 40 μm as the permissible circle of confusion.

\*2: The resolution is a value calculated using a 550 nm wavelength. The specifications above are values based on the optical design. Differences between individual devices may occur due to assembly accuracy, etc.

Various technical documents available.

- PDF Drawings
- DXF Drawings
- 3D CAD
- Instruction Guides
- Product Filers
- Imaging Samples
- Data Sheets
- Examples of Custom Ordered Products

Download here.  
<http://www.ccs-grp.com/dl/>

## Field of vision chart

These values are for reference.

### Coaxial type

Model name	Optical magnification	Sensor size: 1/1.8 inch		
		Length	Width	Diagonal
SE-65VT08	0.8x	6.65	8.98	11.16
SE-65VT10	1.0x	5.32	7.18	8.93
SE-65VT15	1.5x	3.55	4.78	5.95
SE-65VT20	2.0x	2.66	3.59	4.47
SE-65VT40	4.0x	1.33	1.80	2.23

(Unit: mm)

Model name	Optical magnification	Sensor size: 1/1.8 inch		
		Length	Width	Diagonal
SE-110VT08	0.8x	6.65	8.97	11.17
SE-110VT10	1.0x	5.32	7.18	8.93
SE-110VT15	1.5x	3.55	4.78	5.95
SE-110VT20	2.0x	2.66	3.59	4.47
SE-110VT40	4.0x	1.33	1.79	2.23

### Straight type

Model name	Optical magnification	Sensor size: 1/1.8 inch		
		Length	Width	Diagonal
SE-65ST08	0.8x	6.65	8.98	11.16
SE-65ST10	1.0x	5.32	7.18	8.93
SE-65ST15	1.5x	3.55	4.78	5.95
SE-65ST20	2.0x	2.66	3.59	4.47
SE-65ST40	4.0x	1.33	1.80	2.23

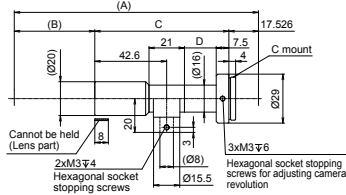
(Unit: mm)

Model name	Optical magnification	Sensor size: 1/1.8 inch		
		Length	Width	Diagonal
SE-110ST08	0.8x	6.65	8.97	11.17
SE-110ST10	1.0x	5.32	7.18	8.93
SE-110ST15	1.5x	3.55	4.78	5.95
SE-110ST20	2.0x	2.66	3.59	4.47
SE-110ST40	4.0x	1.33	1.79	2.23

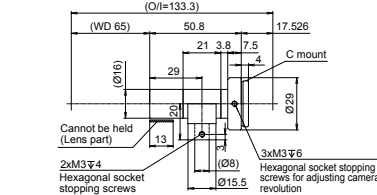
For other fields of vision, refer to the field of vision chart in the Technical Guide. ▶ P.296

## Dimensions (mm)

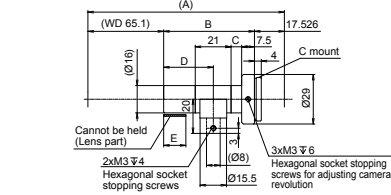
SE-65VT08/SE-65VT10 (Coaxial)



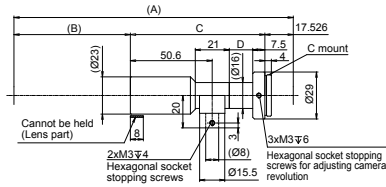
SE-65VT15 (Coaxial)



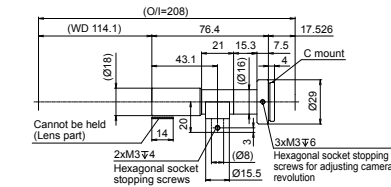
SE-65VT20/SE-65VT40 (Coaxial)



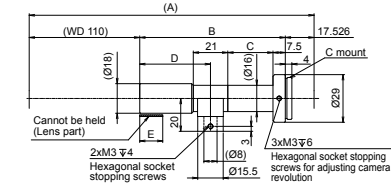
SE-110VT08/SE-110VT10 (Coaxial)



SE-110VT15 (Coaxial)

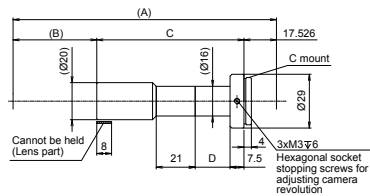


SE-110VT20/SE-110VT40 (Coaxial)

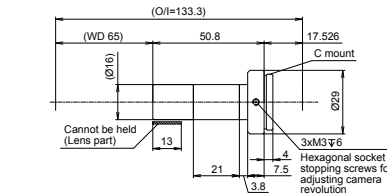


Dimensions chart	SE-65VT08	SE-65VT10	SE-65VT15	SE-65VT20	SE-65VT40	SE-110VT08	SE-110VT10	SE-110VT15	SE-110VT20	SE-110VT40
	A	O/I=164.6	O/I=172.1	O/I=135.8	O/I=147	O/I=211	O/I=213.9	O/I=216.1	O/I=212.5	O/I=212.5
B	WD 67.7	WD 65.2	53.2	64.4	WD 110.4	WD 110	88.6	84.9	84.9	84.9
C	79.4	89.4	6.2	18.5	83.1	86.3	27.5	30.4	27.5	30.4
D	18.8	28.8	29	27.9	14.5	17.7	43.1	36.5	43.1	36.5
E	-	-	13	11	-	-	14	11	-	-

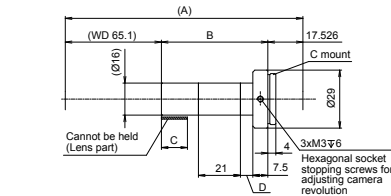
SE-65ST08/SE-65ST10 (Straight)



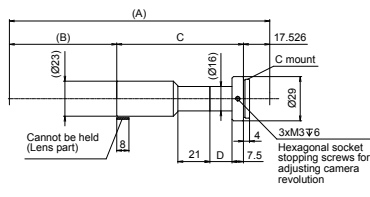
SE-65ST15 (Straight)



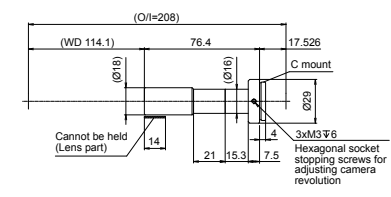
SE-65ST20/SE-65ST40 (Straight)



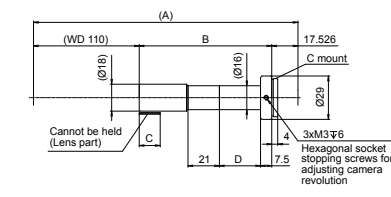
SE-110ST08/SE-110ST10 (Straight)



SE-110ST15 (Straight)



SE-110ST20/SE-110ST40 (Straight)



Dimensions chart	SE-65ST08	SE-65ST10	SE-65ST15	SE-65ST20	SE-65ST40	SE-110ST08	SE-110ST10	SE-110ST15	SE-110ST20	SE-110ST40
	A	O/I=164.6	O/I=172.1	O/I=135.8	O/I=147	O/I=211	O/I=213.9	O/I=216.1	O/I=212.5	O/I=212.5
B	WD 67.7	WD 65.2	53.2	64.4	WD 110.4	WD 110	88.6	84.9	84.9	84.9
C	79.4	89.4	6.2	18.5	83.1	86.3	27.5	30.4	27.5	30.4
D	18.8	28.8	29	27.9	14.5	17.7	43.1	36.5	43.1	36.5

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- Direct Lighting
  - LDR2
  - LDR2-LA
  - LDR-LA1
  - SQR
  - SQR-TP
- Diffused Lighting
  - HPR2
  - LFR
  - LKR
  - FPR
  - FPQ2
  - LDL2
  - LDLB
  - HLDL2
  - HL
- TH2 (5 types)
  - TH
  - LFL
  - HPD2
  - LDM2
  - LAV
  - PDM
  - LFX3
  - LFX3-PT
  - LFX2
  - LFX3
- Collimated Lighting
  - MSU
  - MFU
- Strobe Lighting
  - PF
- Water-proof
  - HLDR-IP/ IQ/HSL-PCL
- Ultraviolet Lighting
  - UV2
  - UV
  - LNSP-UV-FN
- Infrared Lighting
  - IR2
- Intensity Control
  - IU
- Spot Lighting, Etc.
  - HLV2
  - LV
  - LSP
  - HFS/HFR
  - HLV2-NR
  - HLV2-3M-RGB-3W
  - PFBR
  - PFB2
- Convergent Lighting
  - LNLPL
  - LNSP2
  - LNSP
  - Coaxial Units
  - LNSP-FN
  - LN/LN-HK
- Diffused Lighting
  - LNSD
  - LND2
  - HLND
  - LT
  - LNV/HLDN
- Oblique Angled Lighting
  - LNDG
  - LNIS
  - LNIS-FN
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  - Telecentric Lens
  - Macro Lens