Basler Lenses

Pyramid Imaging

- Standard and Premium product lines for different application requirements
- Price-sensitive lenses with solid basic performance
- Best quality options for most demanding applications
- Covering all image circles from 1/2.5″ to 1.1″
- Various resolution options from 2 MP to 12 MP

BASLER
the power of sight

OVERVIEW

Basler Lenses Give Vision Applications the Required Sharpness

We offer the right lens for every Basler camera. The Basler Lens series comprises two product lines for various requirements: Standard and Premium.

Combined with a camera and lighting, lenses are instrumental in determining the image quality. Of interest when choosing the right lens is the balance between the price and the required imaging performance, i.e. high resolution with optimal image quality. Basler offers the right lens for both scenarios.

Our product lines support popular image circles of sensors available in Basler cameras, from 1/2.5″ to 1.1”, as well as all common focal lengths. The lenses are equipped with a C-mount and can also be conveniently used with CS-mount cameras with the help of an adapter.

Need Help Selecting the Right Vision Components for Your Application?

Find the right lens for your Basler camera! Several suitable lenses for your application are suggested to you based on data such as focal length, angle of view, working distance or object size. Test our convenient Lens Selector: *baslerweb.com/lens-selector*

Basler Standard Lenses

The lenses in the Standard product line are suitable for standard vision applications with an excellent price/performance ratio. These lenses have a needs-oriented design and correspond to the lower requirements of many cost-sensitive applications. Thanks to the solid basic performance, they are ideal for fast cameras with a lower resolution.

Highlights of the Basler Standard Lenses

- excellent price/performance ratio
- solid basic performance
- suitable for simple vision applications and price-sensitive systems
- ideal for fast cameras with a low resolution

Basler Premium Lenses

The lenses in the Premium product line are designed and tested for more demanding applications. Thanks to a very high resolution, low distortion and low vignetting, they offer the best image quality. This makes them optimal for cameras with very high resolutions for the analysis of the smallest structures. The cost aspect was also taken into account for lenses in this product line.

Highlights of the Basler Premium Lenses

- designed and tested for the most demanding applications
- best quality: very high resolution, low distortion, low vignetting
- still cost-optimized
- optimal for cameras with very high resolutions for the analysis of the smallest structures

TECHNICAL DETAILS

Specifications

Basler Lenses 1/2.5"	C125-0418-5M-P	C125-0618-5M-P	C125-0818-5M-P	C125-1218-5M-P	C125-1620-5M-P	C125-2522-5M-P
Specifications						
Order number	2000034830	2000034831	2000034832	2000034833	2000034834	2000034835
Product line	Premium					
Max. image circle	1/2.5" (7.3 mm)					
Resolution	5 MP					
Mount	C-Mount					
Focal length	4 mm	6 mm	8 mm	12 mm	16 mm	25 mm
Maximum relative aperture	1:1.8				1:2.0	1:2.2
Focus range	0.1 m – ∞	0.1 m – ∞	0.1 m – ∞	0.2 m – ∞	0.2 m – ∞	0.2 m – ∞
Iris control	manual					
Focus control	manual					
Angle of view, 1/2.5" (horizontal/vertical)	76.4° / 58.5°	53.1° / 40.1°	39.6° / 29.9°	27.0° / 20.3°	20.3° / 15.3°	13.0° / 9.8°
Wavelength range	400 – 700 nm					
TV distortion	-5.9 %	-3.3 %	-1.6 %	-0.7 %	-0.3 %	-0.2 %
Filter size	M46 × 0.75*	M35.5 × 0.5*			M25.5 × 0.5	
Dimensions max.	31.3 × Ø29 mm	30.6 × Ø29 mm	29.8 × Ø29 mm	40.8 × Ø29 mm	41.2 × Ø29 mm	41.0 × Ø29 mm
Operating temperature	-10°C to +50°C (14°F to 122°F)					

Specifications are subject to change without prior notice. Latest specifications can be found on our website *baslerweb.com/Basler-Lenses*

* filter adapter required

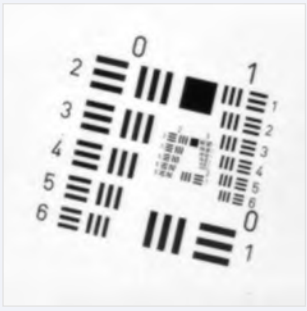
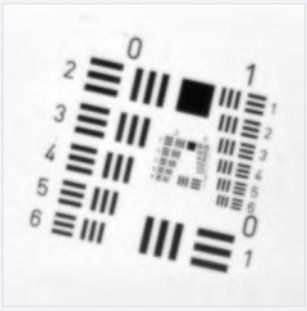
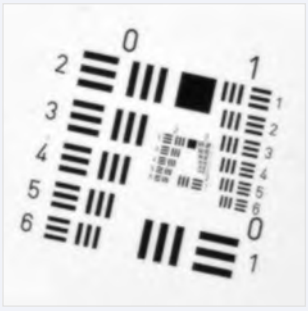
TECHNICAL DETAILS

Comparison Images

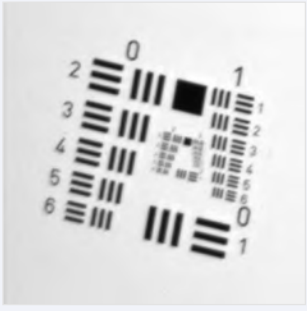
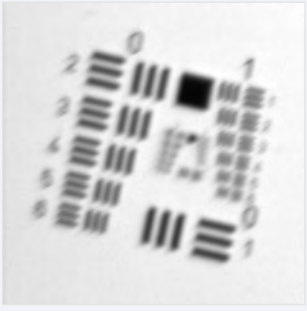
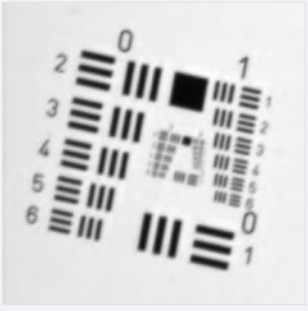
The following test images show the resolution of the Basler Standard Lens C125 compared to two competitor lenses.

Why is resolution such an important indicator for the performance of a lens? The resolution controls the amount of detail visible in the image. To achieve a high-quality image throughout the entire field of view, the resolution must be excellent from center to corners.

CENTER OF 1/2.5" SENSOR

Basler Premium Lens 1/2.5" 5MP	2/3" competitor lens, same price level	2/3" competitor lens, price 4× higher
		

CORNER OF 1/2.5" SENSOR

Basler Premium Lens 1/2.5" 5MP	2/3" competitor lens, same price level	2/3" competitor lens, price 4× higher
		

Test set-up:

Camera: acA2500-14gm (sensor: 5MP - MT9P031, pixel size 2.2 µm)
Focal length of lenses: 8 mm
Test conditions: F# 2.8, exposure time 2.8 ms

TECHNICAL DETAILS

Specifications

Basler Lenses 2/3"	C23-0824-5M-P	C23-1224-5M-P	C23-1618-5M-P	C23-2518-5M-P	C23-3518-5M-P	C23-5028-5M-P
Specifications						
Order number	2200000568	2200000569	2200000570	2200000571	2200000572	2200000573
Product line	Premium					
Max. image circle	2/3" (11 mm)					
Resolution	5 MP					
Mount	C-Mount					
Focal length	8 mm	12 mm	16 mm	25 mm	35 mm	50 mm
Maximum relative aperture	1:2.4	1:2.4	1:1.8	1:1.8	1:1.8	1:2.8
Focus range	0.1 m – ∞	0.25 m – ∞	0.2 m – ∞	0.2 m – ∞	0.25 m – ∞	0.4 m – ∞
Iris control	manual					
Focus control	manual					
Angle of view, 2/3" (horizontal/vertical)	57.6°/44.8°	40.3°/30.0°	30.8°/23.0°	20.0°/15.0°	14.3°/10.0°	10.1°/7.6°
Wavelength range	400 – 700 nm					
TV distortion	-0.64 %	-0.10 %	-0.58 %	-0.30 %	-0.01 %	-0.04 %
Filter size	M35.5 × 0.5	M27.0 × 0.5	M27.0 × 0.5	M27.0 × 0.5	M27.0 × 0.5	M27.0 × 0.5
Dimensions max.	45.1 × Ø37 mm	37.5 × Ø29 mm	45.4 × Ø29 mm	37.2 × Ø29 mm	40.0 × Ø29 mm	48.2 × Ø29 mm
Operating temperature	-10°C to +50°C (14°F to 122°F)					

Specifications are subject to change without prior notice. Latest specifications can be found on our website *baslerweb.com/Basler-Lenses*

Comparison Images

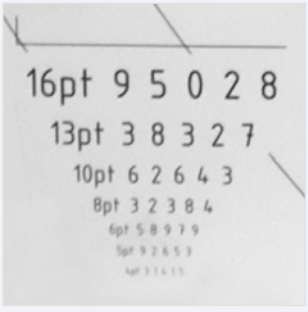
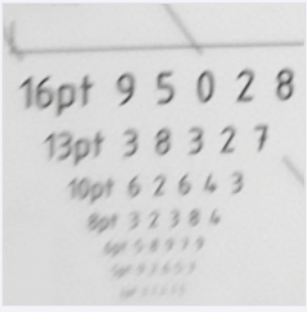
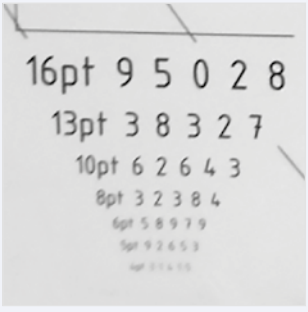
The following test images show the resolution of the Basler Premium Lens C23 5MP compared to two competitor lenses.

Why is resolution such an important indicator for the performance of a lens? The resolution controls the amount of detail visible in the image. To achieve a high-quality image throughout the entire field of view, the resolution must be excellent from center to corners.

CENTER OF 2/3" 5MP SENSOR

Basler Premium Lens 2/3" 5MP	2/3" competitor lens, same price level	2/3" competitor lens, price 3× higher
		

CORNER OF 2.3" 5MP SENSOR

Basler Premium Lens 2/3" 5MP	2/3" competitor lens, same price level	2/3" competitor lens, price 3× higher
		

Test set-up:

Camera: acA4112-20um with AOI set identical to IMX264 (sensor: 5MP – IMX264, pixel size 3.45 µm)
Focal length of lenses: 8 mm
Test conditions: F# 2.8, working distance 0.5 m, exposure time set to same brightness level

TECHNICAL DETAILS

Specifications

Basler Lenses 1.1"	C11-0824-12M-P	C11-1220-12M-P	C11-1620-12M-P	C11-2520-12M-P	C11-3520-12M-P	C11-5020-12M-P
Specifications						
Order number	2200000574	2200000575	2200000576	2200000577	2200000578	2200000579
Product line	Premium					
Max. image circle	1.1" (17.6 mm)					
Resolution	12 MP					
Mount	C-Mount					
Focal length	8.5 mm	12 mm	16 mm	25 mm	35 mm	50 mm
Maximum relative aperture	1:2.4	1:2.0				
Focus range	0.10 m – ∞	0.10 m – ∞	0.10 m – ∞	0.10 m – ∞	0.15 m – ∞	0.2 m – ∞
Iris control	manual					
Focus control	manual					
Angle of view, 1.1" (horizontal/vertical)	84.0°/ 65.5°	61.2°/ 46.9°	47.9°/36.0°	31.2°/23.2°	23.0°/16.9°	16.3°/12.0°
Wavelength range	400 – 700 nm					
TV distortion	-4.6%	1.0%	-1.1%	0.1%	0.05%	0.05%
Filter size	M58.0 × 0.75	M46 × 0.5	M37 × 0.5	M35.5 × 0.5	M34 × 0.5	M34 × 0.5
Dimensions max.	65.8 × Ø60 mm	61.5 × Ø48 mm	61.5 × Ø40.5 mm	68.8 × Ø42 mm	79.2 × Ø42 mm	83.6 × Ø45 mm
Operating temperature	-10°C to +50°C (14°F to 122°F)					

Specifications are subject to change without prior notice. Latest specifications can be found on our website *baslerweb.com/Basler-Lenses*

Comparison Images

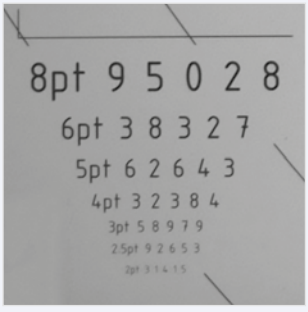
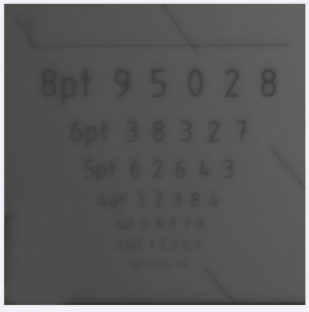
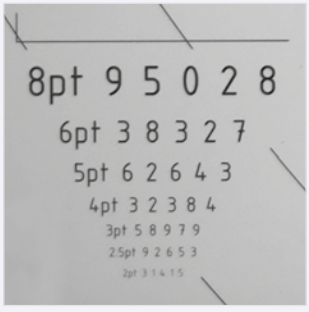
The following test images show the resolution of the Basler Premium Lens C11 12MP compared to two competitor lenses.

Why is resolution such an important indicator for the performance of a lens? The resolution controls the amount of detail visible in the image. To achieve a high-quality image throughout the entire field of view, the resolution must be excellent from center to corners.

CENTER OF 1.1" 12MP SENSOR

Basler Premium Lens 1.1" 12MP	1.1" competitor lens, same price level	1.1" competitor lens, price 2× higher
		

CORNER OF 1.1" 12MP SENSOR

Basler Premium Lens 1.1" 12MP	1.1" competitor lens, same price level	1.1" competitor lens, price 2× higher
		

Test set-up:

Camera: acA4112-20um (sensor: 12MP – IMX 304, pixel size 3.45 µm)
Focal length of lenses: 25 mm
Test conditions: F# 2.8, working distance 0.5 m, exposure time set to same brightness level

TECHNICAL DETAILS

Specifications

Basler Lenses 2/3"	C23-0816-2M-S	C23-1216-2M-S	C23-1616-2M-S	C23-2518-2M-S	C23-3520-2M-S	C23-5026-2M-S
Specifications						
Order number	2200000178	2200000179	2200000180	2200000181	2200000182	2200000183
Product line	Standard					
Max. image circle	2/3" (11 mm)					
Resolution	2 MP					
Mount	C-Mount					
Focal length	8.6 mm	12 mm	16 mm	25 mm	35 mm	50 mm
Maximum relative aperture	1:1.6	1:1.6	1:1.6	1:1.8	1:2.0	1:2.6
Focus range	0.25 m – ∞	0.1 m – ∞	0.2 m – ∞	0.3 m – ∞	0.35 m – ∞	0.3 m – ∞
Iris control	manual					
Focus control	manual					
Angle of view, 2/3" (horizontal/vertical)	56°/43°	39°/30°	29.5°/22.6°	19°/14°	14°/10°	9.7°/7.3°
Wavelength range	400 – 700 nm					
TV distortion	-2.6 %	-0.21%	-0.5%	-0.25%	-0.19%	-0.04%
Filter size	M40.5 × 0.5	M27 × 0.5	M27 × 0.5	M27 × 0.5	M27 × 0.5	M30.5 × 0.5
Dimensions max.	58.6 × Ø42mm	39.2 × Ø35 mm	42.4 × Ø35 mm	38.4 × Ø35 mm	39.2 × Ø35 mm	65.7 × Ø35 mm
Operating temperature	-10°C to +60°C (14°F to 140°F)					

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* vignetting visible

TECHNICAL DETAILS

Specifications

Basler Lenses 1"	C10-0814-2M-S	C10-1214-2M-S	C10-1614-3M-S	C10-2514-3M-S	C10-3514-8M-S	C10-5014-2M-S
Specifications						
Order number	2200000098	2200000099	2200000100	2200000101	2200000603	2200000102
Product line	Standard					
Max. image circle	1" (16 mm)					
Resolution	2 MP	2 MP	3 MP	3 MP	8 MP	2 MP
Mount	C-Mount					
Focal length	8 mm	12.5 mm	16 mm	25 mm	35 mm	50 mm
Maximum relative aperture	1:1.4					
Focus range	0.1 m – ∞	0.1 m – ∞	0.3 m – ∞	0.3 m – ∞	0.2 m – ∞	0.5 m – ∞
Iris control	manual					
Focus control	manual					
Angle of view, 1" (horizontal/vertical)	79.7°/62.9°	56.5°/42.5°	44.3°/33.6°	29.3°/22.0°	20.9°/15.7°	14.5°/10.9°
Wavelength range	400 – 700 nm					
TV distortion	-1.02 %	-1.48 %	-1.03 %	-1.0 %	0,39%	0.21 %
Filter size	M55 × 0.75	M35.5 × 0.5	M35.5 × 0.5	M35.5 × 0.5	M40.5 × 0.5	M40.5 × 0.5
Dimensions max.	58.6 × Ø57 mm	53.0 × Ø43 mm	49.4 × Ø43 mm	45.1 × Ø43 mm	59.4 × Ø43 mm	53.1 × Ø47.5 mm
Operating temperature	-10°C to +50°C (14°F to 122°F)					

Specifications are subject to change without prior notice. Latest specifications can be found on our website *baslerweb.com/Basler-Lenses*

OTHER INFORMATION

About Basler

Basler is a leading manufacturer of high-quality cameras and camera accessories for industry, medicine, traffic and a variety of other markets. The company's product portfolio encompasses area scan and line scan cameras in compact housing dimensions, camera modules in board level variants for embedded vision solutions, and 3D cameras. The catalog is rounded off by our user-friendly pylon SDK plus a broad spectrum of accessories, including several developed specially for Basler and optimally harmonized for our cameras. Basler has three decades of experience in computer vision.

The Basler Group is home to approximately 800 employees at its headquarters in Ahrensburg, Germany, and at other locations in Europe, Asia, and North America.

Helping You Create Your Vision Solution

Select compatible components for your vision system with the help of our convenient Vision System Configurator: *baslerweb.com/vision-system-configurator*. You can pick cameras, lenses, power and data cables as well as other accessories step by step. We ensure that the selected components fit together. You get all required vision components from Basler and you no longer need to search among numerous providers.

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