# **Basler Cameras**

PRODUCT LINE OVERVIEW















#### **Area Scan Cameras**





Basler ace classic  Sensor  Resolution (H×V pixels)  Rate [fps]  Color Depth	rface Pixel Size Sensor Size Optica [  [    pm²   mm²   Size
acA640-90um/uc ICX424 659×494 90 m/c 8/12 USB	3 3.0 7.4×7.4 4.88×3.66 1/3"
acA640-120um/uc ICX618 659×494 120 m/c 8/12 USB	3 3.0 5.6×5.6 3.69×2.77 1/4"
acA1300-30um/uc ICX445 1296×966 30 m/c 8/12 USB	3 3.0 3.75 × 3.75 4.86 × 3.62 1/3"
acA1600-20um/uc ICX274 1626×1236 20 m/c 8/12 USB	3 3.0 4.4×4.4 7.16×5.44 1/1.8"
acA1920-25um/uc MT9P031 1920×1080 25 m/c 8/12 USB	3 3.0 2.2×2.2 4.22×2.38 1/3.7′
acA2000-165um/uc CMV2000 2048×1088 165 m/c 8/12 USB	3 3.0 5.5×5.5 11.26×5.98 2/3"
acA2000-165umNIR CMV2000 2048×1088 165 m 8/12 USB	3 3.0 5.5×5.5 11.26×5.98 2/3"
acA2040-90um/uc CMV4000 2048×2048 90 m/c 8/12 USB	3 3.0 5.5×5.5 11.26×11.26 1"
acA2040-90umNIR CMV4000 2048×2048 90 m 8/12 USB	3 3.0 5.5×5.5 11.26×11.26 1"
acA2500-14um/uc MT9P031 2592×1944 14 m/c 8/12 USB	3 3.0 2.2×2.2 5.70×4.28 1/2.5′
acA3800-14um/uc MT9J003 3840×2748 14 m/c 8/12 USB	3 3.0 1.67×1.67 6.44×4.62 1/2.3"
acA4600-10uc MT9F002 4608×3288 10 c 8/12 USB	3 3.0 1.4×1.4 6.45×4.63 1/2.3′
Basler ace U Sensor Resolution (H×V pixels) Rate [fps] Mono/ Bit Depth Inter	rface Pixel Size Sensor Size Optica [mm²] Size
acA640-750um/uc PYTHON 300 640×480 751 m/c 8/10 USB	3 3.0 4.8×4.8 3.07×2.30 1/4"
acA800-510um/uc PYTHON 500 800×600 511 m/c 8/10 USB	3 3.0 4.8 × 4.8 3.84 × 2.88 1/3.6′
acA1300-200um/uc PYTHON 1300 1280×1024 203 m/c 8/10 USB	3 3.0 4.8 × 4.8 6.14 × 4.92 1/2"
acA1920-40um/uc IMX249 1920×1200 41 m/c 8/12 USB	3 3.0 5.86×5.86 11.25×7.03 1/1.2"
acA1920-150um/uc PYTHON 2000 1920 × 1200 150 m/c 8/10 USB	3 3.0 4.8 × 4.8 9.50 × 6.08 2/3"
acA1920-155um/uc IMX174 1920×1200 164 m/c 8/12 USB	3 3.0 5.86×5.86 11.25×7.03 1/1.2"
acA2040-55um/uc IMX265 2048 × 1536 55 m/c 8/12 USB	3 3.0 3.45 x 3.45 7.07 x 5.30 1/1.8"
acA2040-120um/uc IMX252 2048 × 1536 120 m/c 8/12 USB	3 3.0 3.45 x 3.45 7.07 x 5.30 1/1.8"
acA2440-35um/uc IMX264 2448 x 2048 35 m/c 8/12 USB	3 3.0 3.45 x 3.45 8.45 x 7.07 2/3"
acA2440-75um/uc IMX250 2448 x 2048 75 m/c 8/12 USB	3 3.0 3.45 x 3.45 8.45 x 7.07 2/3"
acA2500-60um/uc PYTHON 5000 2592 x 2048 60 m/c 8/10 USB	3 3.0 4.8 × 4.8 12.44 × 9.83 1"
acA3088-57um/uc IMX178 3088×2064 59 m/c 8/12 USB	3 3.0 2.4×2.4 7.41×4.95 1/1.8"
acA4024-29um/uc IMX226 4024×3036 31 m/c 8/12 USB	3 3.0 1.85×1.85 7.44 × 5.62 1/1.7"
Basler ace L Sensor Resolution Frame Mono/ Bit October Rate [fps] Color Depth	rface Pixel Size Sensor Size Optica [mm²] Size
acA4096-30um/uc IMX267 4096×2160 30 m/c 8/12 USB	3 3.0 3.45 × 3.45 14.13 × 7.45 1"
acA4096-40um/uc IMX255 4096×2160 40 m/c 8/12 USB	3 3.0 3.45×3.45 14.13×7.45 1"
acA4112-20um/uc IMX304 4096×3000 20 m/c 8/12 USB	3 3.0 3.45 × 3.45 14.13 × 10.35 1.1"
	3 3.0 3.45 × 3.45 14.13 × 10.35 1.1"

ace USB 3.0 cameras are available with C or CS-mount (depending on model).

Specifications are subject to change without prior notice.

Latest specifications and availability can be found on our website www.baslerweb.com/ace. Please visit www.baslerweb.com/manuals for the detailed camera User's Manual and www.baslerweb.com/thirdparty for information on third party software.

NIR = Near Infrared Enhanced

#### **Area Scan Cameras**





Basler pulse	Sensor	Resolution (H×V pixels)	Frame Rate [fps]	Mono/ Color	Bit Depth	Interface	Pixel Size [µm²]	Sensor Size [mm²]	Optical Size
puA1280-54um/uc	AR0134	1280×960	54	m/c	8/12	USB 3.0	3.75×3.75	4.80×3.60	1/3"
puA1600-60um/uc	EV76C570	1600×1200	60	m/c	8/12	USB 3.0	$4.5 \times 4.5$	$7.20 \times 5.40$	1/1.8"
puA1920-30um/uc	MT9P031	1920×1080	30	m/c	8/12	USB 3.0	2.2×2.2	4.22×2.38	1/3.7"
puA2500-14um/uc	MT9P031	2592×1944	14	m/c	8/12	USB 3.0	2.2×2.2	5.70×4.28	1/2.5"

pulse cameras are available with CS-mount.

Specifications are subject to change without prior notice.

Latest specifications and availability can be found on our website www.baslerweb.com/pulse. Please visit www.baslerweb.com/manuals for the detailed camera User's Manual and www.baslerweb.com/thirdparty for information on third party software.

#### **Area Scan Cameras**





Basler dart	Sensor	Resolution (H×V pixels)		Mono/ Color	Bit Depth	Interface	Pixel Size [µm²]	Sensor Size [mm²]	Optical Size
daA1280-54um/uc	AR0134	1280×960	54	m/c	8/12	USB 3.0	3.75×3.75	4.80×3.60	1/3"
daA1600-60um/uc	EV76C570	1600×1200	60	m/c	8/12	USB 3.0	$4.5 \times 4.5$	$7.20 \times 5.40$	1/1.8"
daA1920-15um*1	MT9P031	1920×1080	15	m	8/12	USB 3.0	2.2×2.2	4.22×2.38	1/3.7"
daA1920-30um/uc	MT9P031	1920×1080	30	m/c	8/12	USB 3.0	2.2×2.2	4.22×2.38	1/3.7"
daA2500-14um/uc	MT9P031	2592×1944	14	m/c	8/12	USB 3.0	2.2×2.2	5.70×4.28	1/2.5"

dart USB 3.0 cameras are available with S or CS-mount or as a bare board variant without a lens mount.

Specifications are subject to change without prior notice.

Latest specifications and availability can be found on our website www.baslerweb.com/dart. Please visit www.baslerweb.com/manuals for the detailed camera User's Manual and www.baslerweb.com/thirdparty for information on third party software.

#### **Area Scan Cameras**





Basler dart	Sensor	Resolution (H×V pixels)	Frame Rate [fps]	Mono/ Color	Bit Depth	Interface	Pixel Size [µm²]	Sensor Size [mm²]	Optical Size
daA1280-54bm/bc	AR0134	1280 × 960	54	m/c	8/12	BCON for LVDS	3.75 × 3.75	4.80 × 3.60	1/3′′
daA1600-60bm/bc	EV76C570	1600 × 1200	60	m/c	8/12	BCON for LVDS	$4.5 \times 4.5$	7.20 × 5.40	1/1.8′′
daA2500-14bm/bc	MT9P031	2592 × 1944	14	m/c	8/12	BCON for LVDS	2.2 × 2.2	5.70 × 4.28	1/2.5"

dart BCON cameras are available with S or CS-mount or as a bare board variant without a lens mount.

Specifications are subject to change without prior notice.

 $Latest\ specifications\ and\ availability\ can\ be\ found\ on\ our\ website\ www.baslerweb.com/dart.$ 

 ${\it Please\ visit\ www.baslerweb.com/third party\ for\ information\ on\ third\ party\ software.}$ 

<sup>\*1</sup>Bare board only

#### **Area Scan Cameras**





Basler ace classic	Sensor	(H × V pixels)	Frame Rate [fps]	Mono/ Color	Depth	Interface	[µm²]	[mm <sup>2</sup> ]	Optica Size
acA640-90gm/gc	ICX424	659×494	90	m/c	8/12	GigE, PoE	7.4×7.4	4.88×3.66	1/3"
acA640-120gm/gc	ICX618	659×494	120	m/c	8/12	GigE, PoE	5.6×5.6	3.69×2.77	1/4"
acA645-100gm/gc	ICX414	659×494	100	m/c	8/12	GigE, PoE	9.9×9.9	6.52×4.89	1/2"
acA750-30gm/gc	ICX409	752×580	30	m/c	8/12	GigE, PoE	6.5×6.25	4.89×3.64	1/3"
acA780-75gm/gc	ICX415	782×582	75	m/c	8/12	GigE, PoE	8.3×8.3	6.49×4.83	1/2"
acA1300-22gm/gc	ICX445	1296×966	22	m/c	8/12	GigE, PoE	3.75×3.75	4.86×3.62	1/3"
acA1300-30gm/gc	ICX445	1296×966	30	m/c	8/12	GigE, PoE	3.75×3.75	4.86×3.62	1/3"
acA1280-60gm/gc*1	EV76C560	1282×1026	60	m/c	8/12	GigE, PoE	5.3×5.3	6.80×5.40	1/1.8"
acA1300-60gm/gc*2	EV76C560	1282×1026	60	m/c	8/12	GigE, PoE	5.3×5.3	6.80×5.40	1/1.8"
acA1300-60gmNIR*2	EV76C661	1282×1026	60	m	8/12	GigE, PoE	5.3×5.3	6.80×5.40	1/1.8"
acA1600-20gm/gc	ICX274	1626×1236	20	m/c	8/12	GigE, PoE	$4.4 \times 4.4$	7.16 × 5.44	1/1.8"
acA1600-60gm/gc	EV76C570	1602×1202	60	m/c	8/12	GigE, PoE	4.5×4.5	7.20×5.40	1/1.8"
acA1920-25gm/gc	MT9P031	1920×1080	25	m/c	8/12	GigE, PoE	2.2×2.2	4.22×2.38	1/3.7"
acA2000-50gm/gc	CMV2000	2048×1088	50	m/c	8/12	GigE, PoE	5.5×5.5	11.26×5.98	2/3"
acA2000-50gmNIR	CMV2000	2048×1088	50	m	8/12	GigE, PoE	5.5×5.5	11.26×5.98	2/3"
acA2040-25gm/gc	CMV4000	2048×2048	25	m/c	8/12	GigE, PoE	5.5×5.5	11.26×11.26	1"
acA2040-25gmNIR	CMV4000	2048×2048	25	m	8/12	GigE, PoE	5.5×5.5	11.26×11.26	1"
acA2500-14gm/gc	MT9P031	2592×1944	14	m/c	8/12	GigE, PoE	2.2×2.2	5.70×4.28	1/2.5"
acA3800-10gm/gc	MT9J003	3840×2748	10	m/c	8/12	GigE, PoE	1.67×1.67	6.44×4.62	1/2.3"
acA4600-7gc	MT9F002	4608×3288	7	С	8/12	GigE, PoE	1.4×1.4	6.45×4.63	1/2.3"
Basler ace U	Sensor	Resolution (H×V pixels)	Frame Rate [fps]	Mono/ Color	Bit Depth	Interface	Pixel Size [μm²]	Sensor Size [mm²]	Optica Size
acA640-300gm/gc	PYTHON 300	640×480	376	m/c	8/10	GigE, PoE	4.8×4.8	3.07×2.30	1/4"
acA800-200gm/gc	PYTHON 500	800×600	240	m/c	8/10	GigE, PoE	4.8×4.8	3.84×2.88	1/3.6"
acA1300-75gm/gc	PYTHON 1300	1280×1024	88	m/c	8/10	GigE, PoE	4.8×4.8	6.14×4.92	1/2"
acA1920-40gm/gc	IMX249	1920×1200	42	m/c	8/12	GigE, PoE	5.86×5.86	11.25 × 7.03	1/1.2"
acA1920-48gm/gc	PYTHON 2000	1920×1200	50	m/c	8/10	GigE, PoE	4.8×4.8	9.50×6.08	2/3"
acA1920-50gm/gc	IMX174	1920×1200	50	m/c	8/12	GigE, PoE	5.86×5.86	11.25×7.03	1/1.2"
acA2040-35gm/gc	IMX265	2048×1536	36	m/c	8/12	GigE, PoE	3.45×3.45	7.07 x 5.30	1/1.8"
acA2440-20gm/gc	IMX264	2448×2048	23	m/c	8/12	GigE, PoE	3.45×3.45	8.45 x 7.07	2/3"
acA2500-20gm/gc	PYTHON 5000	2592×2048	21	m/c	8/10	GigE, PoE	4.8×4.8	12.44×9.83	1"
acA3088-16gm/gc	IMX178	3088×2064	16	m/c	8/12	GigE, PoE	2.4×2.4	7.41 x 4.95	1/1.8"
acA4024-8gm/gc	IMX226	4024×3036	8	m/c	8/12	GigE, PoE	1.85×1.85	7.44 × 5.62	1/1.7"
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Resolution Frame Mono/ Bit .

ace GigE cameras are available with C or CS-mount (depending on model).

IMX267

IMX304

 $Latest\ specifications\ and\ availability\ can\ be\ found\ on\ our\ \textit{website}\ \textit{www.baslerweb.com/ace}.\ Please\ visit\ \textit{www.baslerweb.com/manuals}$  for the detailed camera User's Manual and www.baslerweb.com/thirdparty for information on third party software.

Rate [fps]

12

(H×V pixels)

4096×2160

4096×3000

NIR = Near Infrared Enhanced

Basler ace L

NEW acA4096-11gm/gc

NEW acA4112-8gm/gc

\*1 rolling shutter \*2 global shutter (switchable)

Pixel Size Sensor Size

[mm<sup>2</sup>]

[µm²]

GigE, PoE 3.45 × 3.45 14.13 x 10.35

8/12 GigE, PoE 3.45 × 3.45 14.13 x 7.45

Optical

1"

1.1"

Mono/

m/c

m/c

Depth

8/12

Specifications are subject to change without prior notice.

#### **Area Scan Cameras**





Basler aviator	Sensor	Resolution (H×V pixels)	Frame Rate [fps]	Mono/ Color	Bit Depth	Interface	Pixel Size [µm²]	Sensor Size [mm²]	Optical Size
avA1000-100gm/gc	KAI-01050	1024×1024	101	m/c	8/12	GigE	5.5×5.5	5.63×5.63	1/2"
avA1600-50gm/gc	KAI-02050	1600×1200	55	m/c	8/12	GigE	5.5×5.5	8.80×6.60	2/3"
avA1900-50gm/gc	KAI-02150	1920×1080	51	m/c	8/12	GigE	5.5×5.5	10.56×5.94	2/3"
avA2300-25gm/gc	KAI-04050	2330×1750	26	m/c	8/12	GigE	5.5×5.5	12.85×9.64	1"

aviator cameras are available with C-mount.

Specifications are subject to change without prior notice.

Latest specifications and availability can be found on our website www.baslerweb.com/aviator. Please visit www.baslerweb.com/manuals for the detailed camera User's Manual and www.baslerweb.com/thirdparty for information on third party software.

#### **Area Scan Cameras**





Basler pilot	Sensor	Resolution (H×V pixels)	Frame Rate [fps]	Mono/ Color	Bit Depth	Interface	Pixel Size [µm²]	Sensor Size [mm²]	Optical Size
piA640-210gm/gc	KAI-0340	648×488	210	m/c	8/12	GigE	7.4×7.4	4.80×3.61	1/3"
piA1000-48gm/gc	KAI-1020	1004×1004	48	m/c	8/12	GigE	$7.4 \times 7.4$	$7.43 \times 7.43$	2/3"
piA1000-60gm/gc	KAI-1020	1004×1004	60	m/c	8/12	GigE	$7.4 \times 7.4$	$7.43 \times 7.43$	2/3"
piA1600-35gm/gc	KAI-2020	1608×1208	35	m/c	8/12	GigE	$7.4 \times 7.4$	11.90×8.94	1"
piA1900-32gm	KAI-2093	1928×1084	32	m	12	GigE	$7.4 \times 7.4$	14.21×8.02	1"
piA2400-17gm/gc	ICX625	2456×2058	17	m/c	8/12	GigE	3.45×3.45	8.47×7.10	2/3"

pilot cameras are available with C-mount.

Specifications are subject to change without prior notice.

Latest specifications and availability can be found on our website www.baslerweb.com/pilot. Please visit www.baslerweb.com/manuals for the detailed camera User's Manual and www.baslerweb.com/thirdparty for information on third party software.

#### **Area Scan Cameras**





Basler scout	Sensor	Resolution (H×V pixels)	Frame Rate [fps]	Mono/ Color	Bit Depth	Interface	Pixel Size [µm²]	Sensor Size [mm²]	Optical Size
scA640-70gm/gc	ICX424	659×494	70	m/c	8/12	GigE	7.4×7.4	4.88×3.66	1/3"
scA640-74gm/gc	ICX414	659×494	79	m/c	8/12	GigE	9.9×9.9	6.52×4.89	1/2"
scA640-120gm/gc	ICX618	659×494	122	m/c	8/12	GigE	5.6×5.6	3.69×2.77	1/4"
scA750-60gm/gc	MT9V022	752×480	64	m/c	8	GigE	6.0×6.0	4.51×2.88	1/3"
scA780-54gm/gc	ICX415	782×582	55	m/c	8/12	GigE	8.3×8.3	6.49×4.83	1/2"
scA1300-32gm/gc	ICX445	1296×966	32	m/c	8/12	GigE	3.75×3.75	4.86×3.62	1/3"
scA1390-17gm/gc	ICX267	1392×1040	17	m/c	8/12	GigE	4.65×4.65	6.47×4.84	1/2"
scA1400-17gm/gc	ICX285	1392×1040	17	m/c	8/12	GigE	6.45×6.45	8.98×6.71	2/3"
scA1400-30gm/gc	ICX285	1392×1040	30	m/c	8/12	GigE	6.45×6.45	8.98×6.71	2/3"
scA1600-14gm/gc	ICX274	1628×1236	14	m/c	8/12	GigE	$4.4 \times 4.4$	7.16 × 5.44	1/1.8"
scA1600-28gm/gc	ICX274	1628×1236	28	m/c	8/12	GigE	4.4×4.4	7.16×5.44	1/1.8"

scout cameras are available with C-mount.

Specifications are subject to change without prior notice.

Latest specifications and availability can be found on our website www.baslerweb.com/scout. Please visit www.baslerweb.com/manuals for the detailed camera User's Manual and www.baslerweb.com/thirdparty for information on third party software.

#### **Area Scan Cameras**





Basler ace classic	Sensor	Resolution (H×V pixels)	Frame Rate [fps]	Mono/ Color	Bit Depth	Interface	Pixel Size [µm²]	Sensor Size [mm²]	Optical Size
acA2000-340km/kc	CMV2000	2048×1088	340	m/c	8/10/12	CL (full), PoCL	5.5×5.5	11.26×5.98	2/3"
acA2000-340kmNIR	CMV2000	2048×1088	340	m	8/10/12	CL (full), PoCL	5.5×5.5	11.26×5.98	2/3"
acA2040-180km/kc	CMV4000	2048×2048	180	m/c	8/10/12	CL (full), PoCL	5.5×5.5	11.26×11.26	1"
acA2040-180kmNIR	CMV4000	2048×2048	180	m	8/10/12	CL (full), PoCL	5.5×5.5	11.26×11.26	1"

ace Camera Link cameras are available with C-mount.

Specifications are subject to change without prior notice.

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NIR = Near Infrared Enhanced

#### **Area Scan Cameras**





Basler aviator	Sensor	Resolution (H×V pixels)	Frame Rate [fps]	Mono/ Color	Bit Depth	Interface	Pixel Size [µm²]	Sensor Size [mm²]	Optical Size
avA1000-120km/kc	KAI-01050	1024×1024	120	m/c	8/10/12	CL (base)	5.5×5.5	5.63×5.63	1/2"
avA1600-65km/kc	KAI-02050	1600×1200	67	m/c	8/10/12	CL (base)	5.5×5.5	8.80×6.60	2/3"
avA1900-60km/kc	KAI-02150	1920×1080	62	m/c	8/10/12	CL (base)	5.5×5.5	10.56×5.94	2/3"
avA2300-30km/kc	KAI-04050	2330×1750	31	m/c	8/10/12	CL (base)	5.5×5.5	12.85×9.64	1"

aviator Camera Link cameras are available with C-mount.

Specifications are subject to change without prior notice.

Latest specifications and availability can be found on our website www.baslerweb.com/aviator. Please visit www.baslerweb.com/manuals for the detailed camera User's Manual and www.baslerweb.com/thirdparty for information on third party software.

#### **Area Scan Cameras**





Basler beat	Sensor	Resolution (H×V pixels)	Frame Rate [fps]	Mono/ Color	Bit Depth	Interface	Pixel Size [μm²]	Sensor Size [mm²]	Optical Size
beA4000-62km	CMV12000	4096×3072	62	m	8/10/12	CL (full)	5.5×5.5	22.53×16.90	1.75"
beA4000-62kc	CMV12000	4088×3070	62	С	8/10/12	CL (full)	5.5×5.5	22.53×16.90	1.75"

Basler beat cameras are available with F-, M42  $\times$  1-, M58  $\times$  0,75-, M42  $\times$  0.75-mount.

Specifications are subject to change without prior notice.

Latest specifications and availability can be found on our website www.baslerweb.com/beat. Please visit www.baslerweb.com/manuals for the detailed camera User's Manual and www.baslerweb.com/thirdparty for information on third party software.

#### **Area Scan Cameras**





Basler scout	Sensor	Resolution (H × V pixels)	Frame Rate [fps]	Mono/ Color	Bit Depth	Interface	Pixel Size [μm²]	Sensor Size [mm²]	Optical Size
scA640-70fm/fc	ICX424	659×494	71	m/c	8/12	IEEE 1394b	7.4×7.4	4.88×3.66	1/3"
scA640-74fm/fc	ICX414	659×494	74	m/c	8/12	IEEE 1394b	9.9×9.9	6.52×4.89	1/2"
scA640-120fm/fc	ICX618	659×494	122	m/c	8/12	IEEE 1394b	5.6×5.6	3.69×2.77	1/4"
scA750-60fm/fc	MT9V022	752×480	64	m/c	8	IEEE 1394b	6.0×6.0	4.51×2.88	1/3"
scA780-54fm/fc	ICX415	782×582	54	m/c	8/12	IEEE 1394b	8.3×8.3	6.49×4.83	1/2"
scA1000-30fm/fc	ICX204	1034×779	30	m/c	8/12	IEEE 1394b	4.65×4.65	4.81×3.62	1/3"
scA1300-32fm/fc	ICX445	1296×966	32	m/c	8/12	IEEE 1394b	$3.75 \times 3.75$	4.81×3.62	1/3"
scA1390-17fm/fc	ICX267	1392×1040	17	m/c	8/12	IEEE 1394b	4.65×4.65	6.47×4.84	1/2"
scA1400-30fm/fc	ICX285	1392×1040	30	m/c	8/12	IEEE 1394b	$6.45 \times 6.45$	8.98×6.71	2/3"
scA1600-14fm/fc	ICX274	1628×1236	14	m/c	8/12	IEEE 1394b	$4.4 \times 4.4$	7.16 × 5.44	1/1.8"
scA1600-28fm/fc	ICX274	1628×1236	28	m/c	8/12	IEEE 1394b	4.4×4.4	7.16 × 5.44	1/1.8"

scout cameras are available with C-mount.

Specifications are subject to change without prior notice.

Latest specifications and availability can be found on our website www.baslerweb.com/scout. Please visit www.baslerweb.com/manuals for the detailed camera User's Manual and www.baslerweb.com/thirdparty for information on third party software.

#### **Line Scan Cameras**





Basler racer	Sensor	Resolution	Line Rate [kHz]	Mono/ Color	Bit Depth	Interface	Pixel Size [µm²]	Sensor Length [mm]
raL2048-48gm	DR-2k-7	2048	51	m	8/12	GigE	7.0 × 7.0	14.3
raL4096-24gm	DR-4k-7	4096	26	m	8/12	GigE	$7.0 \times 7.0$	28.7
raL6144-16gm	DR-6k-7	6144	17	m	8/12	GigE	7.0 × 7.0	43.0
raL8192-12gm	DR-8k-3.5	8192	12	m	8/12	GigE	$3.5 \times 3.5$	28.7
raL12288-8gm	DR-12k-3.5	12288	8	m	8/12	GigE	3.5×3.5	43.0

racer cameras are available with C-, F-, M42 x 1-, M42 x 0.75-mount.

Specifications are subject to change without prior notice.

Latest specifications and availability can be found on our website www.baslerweb.com/racer. Please visit www.baslerweb.com/manuals for the detailed camera User's Manual and www.baslerweb.com/thirdparty for information on third party software.

#### **Line Scan Cameras**





Basler runner	Sensor	Resolution	Line Rate [kHz]	Mono/ Color	Bit Depth	Interface	Pixel Size [µm²]	Sensor Length [mm]
ruL2098-10gc	KLI-2113	3×2098	9.2	С	8/12	GigE	14.0×14.0	29.37

runner cameras are available with F-mount.

Specifications are subject to change without prior notice.

Latest specifications and availability can be found on our website www.baslerweb.com/runner. Please visit www.baslerweb.com/manuals for the detailed camera User's Manual and www.baslerweb.com/thirdparty for information on third party software.

#### Line Scan Cameras





Basler racer	Sensor	Resolution	Line Rate [kHz]	Mono/ Color	Bit Depth	Interface	Pixel Size [µm²]	Sensor Length [mm]
raL2048-80km	DR-2k-7	2048	80	m	8/10/12	CL*1	7.0 × 7.0	14.3
raL4096-80km	DR-4k-7	4096	80	m	8/10/12	CL*2	$7.0 \times 7.0$	28.7
raL6144-80km	DR-6k-7	6144	80	m	8/10/12	CL (full)	7.0 × 7.0	43.0
raL8192-80km	DR-8k-3.5	8192	80	m	8/10/12	CL (full)	3.5×3.5	28.7
raL12288-66km	DR-12k-3.5	12288	66	m	8/10/12	CL (full)	3.5×3.5	43.0

racer cameras are available with C-, F-, M42  $\times$  1-, M42  $\times$  0.75-mount.

Specifications are subject to change without prior notice.

Latest specifications and availability can be found on our website www.baslerweb.com/racer. Please visit www.baslerweb.com/manuals for the detailed camera User's Manual and www.baslerweb.com/thirdparty for information on third party software.

#### **Line Scan Cameras**





Basler sprint	Sensor	Resolution	Line Rate [kHz]	Mono/ Color	Bit Depth	Interface	Pixel Size [μm²]	Sensor Length [mm]
spL2048-39kc	Dual Line CMOS	2048	38.6	С	8/10/12	CL (base)	10.0×10.0	20.48
spL2048-50km/kc	Dual Line CMOS	2048	50	m/c	8/10/12	CL*1	10.0×10.0	20.48
spL2048-70km/kc	Dual Line CMOS	2048	70	m/c	8/10/12	CL*1	10.0×10.0	20.48
spL2048-140km	Dual Line CMOS	2048	140	m	8/10/12	CL (b/m/f)	10.0×10.0	20.48
spL4096-39km/kc	Dual Line CMOS	4096	38.6	m/c	8/10/12	CL (b/m/f)	10.0×10.0	40.96
spL4096-50km/kc	Dual Line CMOS	4096	50	m/c	8/10/12	CL (b/m/f)	10.0×10.0	40.96
spL4096-70km/kc	Dual Line CMOS	4096	70	m/c	8/10/12	CL (b/m/f)	10.0×10.0	40.96
spL4096-140km/kc	Dual Line CMOS	4096	140	m/c	8/10/12	CL (b/m/f)	10.0×10.0	40.96
spL8192-39kc	Dual Line CMOS	8192	38.6	С	8/10/12	CL (b/m/f)	10.0×10.0	81.92
spL8192-39kcCl*2	Dual Line CMOS	8192	38.6	С	8/10/12	CL (b/m/f)	10.0×10.0	81.92
spL8192-50km	Dual Line CMOS	8192	50	m	8/10/12	CL (b/m/f)	10.0×10.0	81.92
spL8192-70km	Dual Line CMOS	8192	70	m	8/10/12	CL (b/m/f)	10.0×10.0	81.92

sprint cameras are available with F-, V- or M42 x 1-mount (depending on model).

Specifications are subject to change without prior notice.

 $Latest\ specifications\ and\ availability\ can\ be\ found\ on\ our\ website\ www.baslerweb.com/sprint.\ Please\ visit\ www.baslerweb.com/manuals\ for\ the\ detailed\ camera\ User's\ Manual\ and\ www.baslerweb.com/thirdparty\ for\ information\ on\ third\ party\ software.$ 

#### **Line Scan Cameras**





Basler Line Scan	Sensor	Resolution	Line Rate [kHz]	Mono/ Color	Bit Depth	Interface	Pixel Size [μm²]	Sensor Length [mm]
L301k/kc	Tri-linear CCD	3×2098	9.2	m/c	8/10	CL (base)	14.0×14.0	29.37
L304k/kc	Tri-linear CCD	3×4080	7.2	m/c	8/10	CL (base)	10.0×10.0	40.80

L300 cameras are available with F- or M58 x 0,75-mount (depending on model).

Specifications are subject to change without prior notice.

Latest specifications and availability can be found on our website www.baslerweb.com/L300. Please visit www.baslerweb.com/manuals for the detailed camera User's Manual and www.baslerweb.com/thirdparty for information on third party software.

<sup>\*1</sup> CL (base), PoCL, \*2 CL (medium), PoCL

<sup>&</sup>lt;sup>\*1</sup>Mono: base, Color: base/medium/full, <sup>\*2</sup> with Color Improvement Feature, without Line Stamp Feature

#### **3D Cameras**





Basler ToF Camera	Sensor	Resolution	Frame Rate [fps]	Mono/ Color	Туре	Interface	Accuracy	Working Range
tof640-20gm_850nm	Panasonic	640 x 480	20	m	NIR	GigE	+/- 1 cm*	0 m to 13 m

Specifications are subject to change without prior notice.

Latest specifications and availability can be found on our website www.baslerweb.com/tof. Please visit www.baslerweb.com/manuals for the detailed camera User's Manual and www.baslerweb.com/thirdparty for information on third party software.

#### **IP Cameras**



IP Fixed Box	Sensor	Resolution	Max. Frame Rate [fps]	Interface	Pixel Size [µm²]	Optical Size	Video Compression	Lens Mount	Day/ Night
BIP2-640c	CCD	640×480	95	Fast Ethernet	5.60×5.60	1/4"	MJPEG, MPEG-4, H.264	CS-mount, DC iris	
BIP2-640c-dn	CCD	640×480	95	Fast Ethernet	5.60×5.60	1/4"	MJPEG, MPEG-4, H.264	CS-mount, DC iris	Movable IR-cut filter
BIP2-1000c	CCD	1024×768	30	Fast Ethernet	4.65×4.65	1/3"	MJPEG, MPEG-4, H.264	CS-mount, DC iris	
BIP2-1000c-dn	CCD	1024×768	30	Fast Ethernet	4.65×4.65	1/3"	MJPEG, MPEG-4, H.264	CS-mount, DC iris	Movable IR-cut filter
BIP2-1300c	CCD	1280×960	30	Fast Ethernet	3.75×3.75	1/3"	MJPEG, MPEG-4, H.264	CS-mount, DC iris	
BIP2-1300c-dn	CCD	1280×960	30	Fast Ethernet	3.75×3.75	1/3"	MJPEG, MPEG-4, H.264	CS-mount, DC iris	Movable IR-cut filter
BIP2-1600c	CCD	1600×1200	12.5	Fast Ethernet	4.40×4.40	1/1.8"	MJPEG, MPEG-4, H.264	CS-mount, DC iris	
BIP2-1600c-dn	CCD	1600×1200	12.5	Fast Ethernet	4.40×4.40	1/1.8"	MJPEG, MPEG-4, H.264	CS-mount, DC iris	Movable IR-cut filter
BIP2-1600-25c	CCD	1600×1200	25	Fast Ethernet	4.40×4.40	1/1.8"	MJPEG, MPEG-4, H.264	CS-mount, DC iris	
BIP2-1600- 25c-dn	CCD	1600×1200	25	Fast Ethernet	4.40×4.40	1/1.8"	MJPEG, MPEG-4, H.264	CS-mount, DC iris	Movable IR-cut filter
BIP2-1280c	CMOS	1280×720	30	Fast Ethernet	3.30×3.30	1/3"	MJPEG, MPEG-4, H.264	CS-mount, DC iris	
BIP2-1280c-dn	CMOS	1280×720	30	Fast Ethernet	3.30×3.30	1/3"	MJPEG, MPEG-4, H.264	CS-mount, DC iris	Movable IR-cut filter
BIP2-1920c	CMOS	1920×1080	30	Fast Ethernet	2.20×2.20	1/3"	MJPEG, MPEG-4, H.264	CS-mount, DC iris	
BIP2-1920c-dn	CMOS	1920×1080	30	Fast Ethernet	2.20×2.20	1/3"	MJPEG, MPEG-4, H.264	CS-mount, DC iris	Movable IR-cut filter
BIP2-1920-30c	CMOS	1920×1080	30	Fast Ethernet	5.86×5.86	1/1.3"	MJPEG, MPEG-4, H.264	C-mount, DC iris	
BIP2-2500c	CMOS	2560×1920	15 (3 MP)	Fast Ethernet	2.20×2.20	1/2.5"	MJPEG, MPEG-4, H.264	CS-mount, DC iris	
BIP2-2500c-dn	CMOS	2560×1920	15 (3 MP)	Fast Ethernet	2.20×2.20	1/2.5"	MJPEG, MPEG-4, H.264	CS-mount, DC iris	Movable IR-cut filter

Specifications are subject to change without prior notice.

Latest specifications and availability can be found on our www.baslerweb.com/box. Please visit www.baslerweb.com/manuals for the detailed camera User's Manual and www.baslerweb.com/thirdparty for information on third party software.

<sup>\*</sup>Scene dependent: in a range of 0.5 m to 5.8 m, based on a flat white target with over 90% reflectivity, in a room with zero ambient light at  $22^{\circ}$ C, in factory settings mode, looking at the center of the range image.

#### **Basler PowerPack**







Microscopy	Sensor	Resolution (H×V pixels)	Frame Rate [fps]	Mono/ Color	Dynamic Range [dB]	Interface	Pixel Size [μm²]	Active Area [mm]	Optica Size
Microscopy pulse 1.2MP	ON Semi- conductor	1280×960	54	С	64	USB 3.0	3.75×3.75	6.00	1/3"
Microscopy pulse 2.0 MP	ON Semi- conductor	1920×1080	30	С	70.1	USB 3.0	2.20×2.20	4.85	1/3.7"
Microscopy pulse 3.3MP	ON Semi- conductor	2048×1584	20	С	70.1	USB 3.0	2.20×2.20	5.7	1/3"
Microscopy pulse 5.0MP	ON Semi- conductor	2592×1944	14	С	70.1	USB 3.0	2.20×2.20	7.13	1/2.5"
Microscopy ace 1.3MP 48	Sony PREGIUS	1280×1024	48	С	73	USB 3.0	5.86×5.86	9.60	1/1.8"
Microscopy ace 1.3MP 145	ON Semi- conductor	1280×1024	145	С	56.2	USB 3.0	4.80×4.80	7.90	1/2"
Microscopy ace 1.3MP 200	ON Semi- conductor	1280×1024	200	m	56.3	USB 3.0	4.80×4.80	7.90	1/2"
Microscopy ace 2.3 MP	Sony PREGIUS	1920×1200	82	С	73	USB 3.0	5.86×5.86	13.30	1/1.2"
Microscopy ace 3.2 MP	Sony PREGIUS	2048×1536	55	С	71.4	USB 3.0	3.45×3.45	9.00	1/1.8"
Microscopy ace 5.1 MP	Sony PREGIUS	2448×2048	35	С	70.6	USB 3.0	3.45×3.45	11.20	2/3"

Basler Microscopy ace cameras are available with C-mount. Basler Microscopy pulse cameras are available with CS-mount, and are delivered with a CS- to C-mount adapter ring.

The Basler Microscopy Cameras are the centerpiece of Basler's PowerPack for Microscopy which delivers all the necessary components for a straightforward setup and easy installation, including the Basler Microscopy Software for camera control, image acquisition, processing, analysis and documentation. These cameras cannot be ordered separately from the Basler PowerPack for Microscopy. For more information please visit www.baslerweb.com/MicroscopyPowerPack

#### **Basler PowerPack**





Embedded Vision	Camera	Interface	Sensor	Resolution (HxV pixels)	Frame Rate [fps]	Mono/ Color	Lens	Processing Board
Basler PowerPack dart USB for Evaluation	daA2500-14uc	USB 3.0	MT9P031	2592x1944	14	С	Evetar M12B0816W F1,6 f8 mm, 1/2	-
Basler PowerPack for Embedded Vision (BCON)	daA2500-14bc	BCON for LVDS	MT9P031	2592x1944	14	С	Evetar M12B0816W F1,6 f8 mm, 1/2	AVNET 7010 MicroZed SOM

All PowerPacks come with a suitable cable and our free pylon camera software suite. The Basler PowerPack for Embedded Vision includes an additional processing board.

Specifications are subject to change without prior notice.

Latest specifications and availability can be found on our website www.baslerweb.com/EPP.

Please visit www.baslerweb.com/thirdparty for information on third party software.

#### Basler's Components Enhance Your Vision

Basler offers you extensively tested cables and lenses, which are optimized for use with our Basler cameras. Our cooperation with certified suppliers facilitates the operation of a high-performance image processing system.

An image processing system needs more than just a camera, lens and light source. A stable vision system also requires accessories for handling data transfer.

Basler offers a wide variety of accessories such as lenses, I/O cables, power supplies, data cables, host adapter cards, hubs or switches designed to help you get the most out of your camera. To ensure full compatibility, all accessories are tested with our cameras. Cables and power supplies are all EMC tested for industrial conditions by our support team.

#### **USB 3.0 Accessories from Basler**

Especially with a USB 3.0 interface, it is important to think about the right accessories to achieve stability in a system with one or more cameras. In particular USB 3.0 accessories from the consumer sector may lead to major disadvantages for the user, as they are not designed to handle the higher demands of machine vision applications.

Our portfolio of USB 3.0 accessories covers a broad selection of cables, host adapter cards and a USB 3.0 hub.

#### **Basler Original Equipment**



The accessories market for machine vision cameras is broad and deep. Therefore, Basler offers products specially developed for our cameras, meaning camera and lens or cables harmonize perfectly with one another. The products are

produced exclusively for us and are available only from Basler. All products with the Basler Original Equipment seal allow top performance when combined with Basler cameras.

#### Why Components from Basler?

- Perfect match with our Basler cameras
- Extensive and qualified portfolio
- One-stop-shopping for your image processing system
- Performance stability through premium quality standards
- Qualified selection of components avoids changes in existing systems
- Professional consultancy during preselection

# Your Benefits Through USB 3.0 Accessories:

- High stability of your USB 3.0 set up
- Simple integration into all image processing applications
- Tested USB 3.0 accessories with reliable premium quality for industrial applications
- Carefully selected accessories for a perfect match
- Plug and play functionality

Have a look at the matching components for your camera model at www.baslerweb.com/accessories

# Typcial set-up of a camera system: BASLER? BASLER? Cable USB 3.0 Power-I/O cable

#### **Basler Lenses**

#### Get perfectly proportioned performance with Basler Lenses

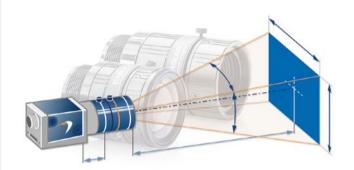
Trends in sensor technology have moved to CMOS with smaller sensor sizes. Only Basler offers lenses that are optimally designed for cameras with sensors sized of ≤1/2". The sensor size our new lens series is optimized for is 1/2.5" (7.3 mm) – a range which accommodates nearly every standard machine vision application. Basler Lenses have a diameter of just 29 mm – affording you the same space efficiency of the ace camera. Best of all, they set a new standard in terms of price-performance ratio, starting at just € 99.

# Need help selecting the right lens for your application?

Our Lens Selector makes it easy to search for the right lens for your Basler area scan camera. The Lens Selector is built around a complex set of calculations, but from the user standpoint it is remarkably easy to use: Visitors to www.baslerweb.com/lens-selector can enter the pertinent data for their application (such as necessary angle of view, working distance, object size, etc.). The Lens Selector then calculates the necessary focal length and proposes suitable lenses for the size and resolution of the sensor.

#### The benefits of Basler Lenses at a glance:

- 5 Megapixel lens optimized for 1/2.5" sensors with resolution of 2.2 µm [230 lp/mm]
- The extreme high resolution of 5 MP allows for razor-sharp images
- Extraordinary price/performance ratio, starting from € 99
- Optimally suited for standard machine vision applications
- Designed in cooperation with Fujinon
- Best match for latest sensor technology with small pixel pitch
- Basler Lenses are perfect for Basler ace, dart and pulse cameras





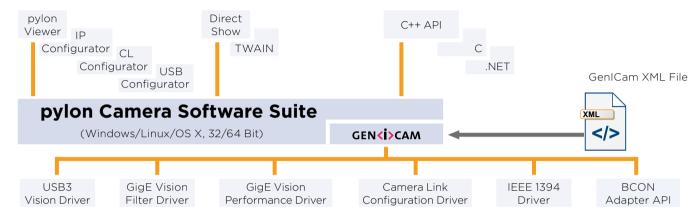
Basler Lenses	C125-0418-5M	C125-0618-5M	C125-0818-5M	C125-1218-5M	C125-1620-5M	C125-2522-5M					
Maximum image circle		1/2.5" (7.3 mm)									
Mount		C-mount									
Focal Length	4 mm	6 mm	8 mm	12 mm	16 mm	25 mm					
Maximum relative aperture		1:	1.8	1:2.0	1:2.2						

Specifications are subject to change without prior notice. Latest specifications can be found on www.baslerweb.com/manuals.

For availability please refer to our website www.baslerweb.com/lenses

#### Basler pylon Camera Software Suite

The pylon Camera Software Suite operates with all Basler line scan and area scan cameras - no matter what interface they use. It offers stable, reliable and flexible data exchange between Basler cameras and PCs, for Windows and Linux on x86 as well as on ARM based systems and OS X - at a very low CPU load.



The architecture of the pylon Camera Software Suite is based on GenlCam Technology, which offers you easy access to the newest camera models and the latest features. Changes to an existing camera device in your application essentially become a plug-and-play process.

An easy-to-use set of tools lets you configure the camera's interface. Use the **pylon Viewer** to set camera parameters, to capture and display images, and to evaluate the camera.

The pylon **USB3 Vision Driver** fully supports the USB3 Vision standard. It allows Basler USB 3.0 cameras to use the full speed and bandwidth of USB 3.0 for image transmission while reducing resource load and using off-the-shelf hardware components.

The **pylon GigE Vision Drivers** quickly separate incoming packets carrying image data from other traffic on the network and make the data available for use by your vision application while requiring the lowest CPU resources.

The pylon **IEEE 1394b Driver** gives you access to a well-established interface technology, and the pylon **Camera Link Configuration Driver** offers comfortable access to all camera parameters of Basler's latest Camera Link families ace, aviator, and racer.

The **BCON Adapter API** allows easy implementation

of an adapter to communicate with the systems  $I^2C$  interface. A ready to use sample adapter implementation is also provided.

The pylon Camera Software Suite also contains a powerful SDK that supports any type of application development. The pylon package contains the following main modules. Each one can be individually selected/unselected during the installation process, preventing the installation of unneeded modules on your system:

- USB3 Vision Driver
- GigE Vision Filter Driver
- GigE Vision Performance Driver
- IEEE 1394 Driver
- BCON Adapter API
- Camera Link Serial Communication Driver
- pylon Viewer
- SDK for all cameras; C, C++, .NET (C#, VB.NET, ...); the 'pylon for Linux' version only supports the GigE and USB 3.0 interface via a C++ API

The pylon Camera Software Suite can be downloaded for free at www.baslerweb.com/pylon. For more information on the installation process, refer to the pylon Installation Guide. The helpful pylon Release Notes contain all improvements and bug fixes since the first pylon version.

## BASI FR WORLDWIDE

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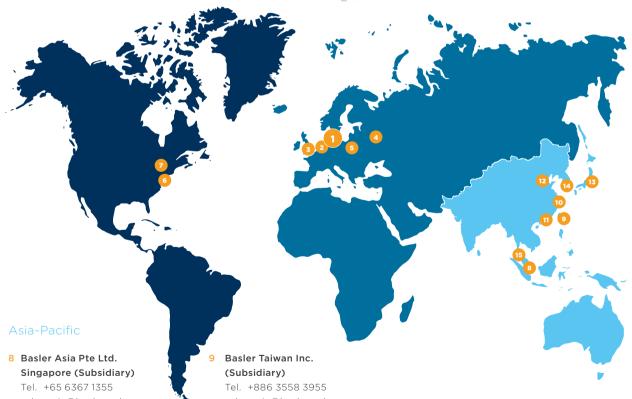
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# How Does Basler Measure and Define Image Quality?



Basler is leading the effort to standardize image quality and sensitivity measurement for cameras and sensors. We are giving the EMVA 1288 standard our strongest support because it describes a unified method to measure, compute, and present the specification parameters for cameras and image sensors. Our cameras are characterized and measured in 100% compliance with the EMVA 1288 standard. Measurement reports can be downloaded from our website.

# How Does Basler Ensure Superior Quality and Reliable High Performance?

Our approach to quality assurance is rigorous: we continually audit all facets of our business to ensure powerful performance, increase efficiency and reduce costs for our customers. We are compliant with all major quality standards including ISO 9001, CE, RoHS, and more. To ensure consistently high product quality, we employ several quality inspection procedures during manufacturing.

Every Basler camera is subjected to exhaustive optical and mechanical tests before leaving the factory. We have developed a unique combination of optics, hardware, and software tools that can quickly and efficiently calibrate a camera and measure its performance against a set of standard performance criteria. Regardless of what technology or camera model you choose you can be assured of consistent performance.

#### **3-Year Warranty**

Basler offers a 3-year warranty for their cameras and Basler Lenses. We make this unprecedented promise because we have unparalleled confidence in our products. We continually reinvest in research, development and superior manufacturing capabilities so that our customers can fully rely on the products we manufacture.

#### **About Basler**

Founded in 1988, Basler is a leading global manufacturer of high quality digital cameras and lenses for factory automation, medical & life sciences, retail and traffic applications. The company employs 500 people at its headquarters in Ahrensburg, Germany and subsidiaries in the United States and Asia.

Basler's portfolio of products offers customers the vision industry's widest selection of industrial and network cameras as well as lenses. Today it includes some 300 camera models – and it's still growing. We're committed to developing technology that drives business results for our customers: cameras and lenses that are easy to use, easy to integrate, and deliver an exceptional price/performance ratio.



Basler AG Germany, Headquarters

