Basler ace

AREA SCAN CAMERAS

NEW: SONY PREGIUS AND ON SEMICONDUCTOR PYTHON SENSORS

GigE VISION USB3 VISION CAMERA Link

- Best price/performance ratio
- USB 3.0 – easiest way for plug and play
- Gigabit Ethernet – 100 m cable length
- Camera Link – highest throughput
- Broad sensor selection:
  CCD, CMOS, NIR versions

BASLER
the power of sight

OVERVIEW

All You Need is ace

The Basler ace camera line covers the entire spectrum of advantages, including cost sensitivity, ultra-fast speeds and high tech in a very small housing. The camera's price-driven design upholds our quality commitment by applying the technical knowledge we've acquired from former camera designs. High quality and performance levels combined with a low starting list price of only €199 make Basler ace cameras one of the world's best-selling cameras, with thousands of satisfied customers.

With the ace series, you can choose from the most popular data interfaces in the vision market: the popular Gigabit Ethernet interface with 100-meter cable length, the new USB 3.0 interface with plug and play capability, or the field-proven Camera Link interface with wide bandwidth. All Basler ace cameras come with an option to provide camera power and data via a single cable. They also offer separate input/output ports for triggering or flash control. And like all Basler cameras, the ace family comes with a long list of firmware features.

The latest ace models with Sony Pregius sensors or PYTHON sensors from ON Semiconductor offer a proprietary new feature set: PGI is a powerful in-camera image optimization that improves your images at the full speed of your camera. It is a unique combination consisting of improved sharpness, denoising, color-anti-aliasing and 5x5 debayering. This gives you the opportunity to get the best pictures directly from your camera without any additional processor load. Use the options of the Basler pylon Camera Software Suite to enable PGI, or change settings for selected PGI components for optimal results. Learn more about PGI at *www.baslerweb.com/PGI*.

This ace of cameras is available with several resolutions and speeds, and with sensors from all leading manufacturers so you can easily find the right ace camera model for your application. Basler ace is all you need.

Your benefits include:

- Support for standard vision interfaces GigE Vision, USB3 Vision, and Camera Link
- Broadest sensor portfolio ever: CMOS and CCD including NIR-enhanced versions, I/O flexibility with minimum delay and jitter time
- One cable solutions: Gigabit Ethernet with PoE, Camera Link with PoCL, USB 3.0
- Field-proven Basler pylon Camera Software Suite with advanced drivers
- Outstanding price/performance ratio

TECHNICAL DETAILS

Specifications

Basler ace	acA640-90gm/gc	acA640-120gm/gc	NEW acA640-300gm/gc	acA645-100gm/gc
Camera				
Resolution (H × V pixels)	659 × 494	659 × 494	640 × 480	659 × 494
Sensor	Sony ICX424	Sony ICX618	PYTHON 300	Sony ICX414
Sensor Size (optical)	1/3″	1/4″	1/4″	1/2″
Sensor Technology	Progressive Scan CCD	Progressive Scan CCD	CMOS, global shutter	Progressive Scan CCD
Pixel Size [µm²]	7.4 × 7.4	5.6 × 5.6	4.8 × 4.8	9.9 × 9.9
Frame Rate [fps]*	90	120	376	100
Mono/Color	Mono/Color	Mono/Color	Mono/Color	Mono/Color
Video Output Format	Mono (8, 12, 12 Packed), Bayer BG (8, 12, 12 Packed), YUV 4:2:2 (Packed, YUYV Packed)	Mono (8, 12, 12 Packed), Bayer BG (8, 12, 12 Packed), YUV 4:2:2 (Packed, YUYV Packed)	Mono (8, 10, 10 Packed), Bayer BG (8, 10, 10 Packed), YUV 4:2:2 (Packed, YUYV Packed)	Mono (8, 12, 12 Packed), Bayer BG (8, 12, 12 Packed), YUV 4:2:2 (Packed, YUYV Packed)
Interface	Fast Ethernet (100 Mbit/s) or Gigabit Ethernet (1000 Mbit/s)			
Synchronization	Via external trigger, via the Ethernet connection or free run			
Exposure Control	Via external trigger or programmable via the camera API			
Mechanical/Electrical				
Housing Size (L × W × H)	42 mm × 29 mm × 29 mm			
Housing Temperature	Up to 50 °C			
Lens Mount	C, CS	C, CS	C	C
Digital I/O	1 opto-isolated input/1 opto-isolated output + 1 GPIO (only acA640-300gm/gc)			
Power Requirements	Via Power over Ethernet (IEEE 802.3af) or + 12VDC (±10%) via the camera´s 6-pin Hirose connector (+ 24 VDC for acA640-300gm/gc)			
Power Consumption (PoE/AUX)	3.1 W/2.7 W	2.3 W/2.0 W	3.5 W/3.1 W	3.6 W/3.3 W
Weight (typical)	<90 g			
Conformity	CE, FCC, IP30, RoHS, PoE (IEEE 802.3af), UL (in preparation for acA640-300gm/gc)			
Software Environment				
Driver	Basler pylon Camera Software Suite or 3rd party GigE Vision Software			
Operating System	Windows, Linux - 32 bit and 64 bit			
Conformity	GigE Vision, GenICam			

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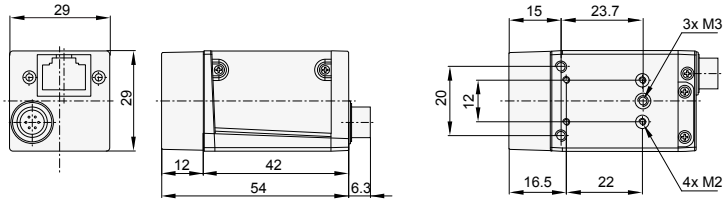
*For definition of Frame Rate, please see User's Manual

Dimensions (in mm)



TECHNICAL DETAILS

Specifications

Basler ace	acA750-30gm/gc	acA780-75gm/gc	acA800-200gm/gc (NEW)	acA1300-22gm/gc
Camera				
Resolution (H × V pixels)	752 × 580	782 × 582	800 × 600	1296 × 966
Sensor	Sony ICX409	Sony ICX415	PYTHON 500	Sony ICX445
Sensor Size (optical)	1/3"	1/2"	1/3.6"	1/3"
Sensor Technology	Interlaced Scan CCD	Progressive Scan CCD	CMOS, global shutter	Progressive Scan CCD
Pixel Size [µm²]	6.5 × 6.25	8.3 × 8.3	4.8 × 4.8	3.75 × 3.75
Frame Rate [fps]*	30	75	240	22
Mono/Color	Mono/Color	Mono/Color	Mono/Color	Mono/Color
Video Output Format	Mono (8, 12, 12 Packed), YUV 4:2:2 (Packed, YUYV Packed)	Mono (8, 12, 12 Packed), Bayer BG (8, 12, 12 Packed), YUV 4:2:2 (Packed, YUYV Packed)	Mono (8, 10, 10 Packed), Bayer BG (8, 10, 10 Packed), YUV 4:2:2 (Packed, YUYV Packed)	Mono (8, 12, 12 Packed), Bayer BG (8, 12, 12 Packed), YUV 4:2:2 (Packed, YUYV Packed)
Interface	Fast Ethernet (100 Mbit/s) or Gigabit Ethernet (1000 Mbit/s)			
Synchronization	Via external trigger, via the Ethernet connection or free run			
Exposure Control	Via external trigger or programmable via the camera API			
Mechanical/Electrical				
Housing Size (L × W × H)	42 mm × 29 mm × 29 mm			
Housing Temperature	Up to 50 °C			
Lens Mount	C	C	C	CS
Digital I/O	1 opto-isolated input/1 opto-isolated output + 1 GPIO (only acA800-200gm/gc)			
Power Requirements	Via Power over Ethernet (IEEE 802.3af) or + 12VDC (±10%) via the camera´s 6-pin Hirose connector (+ 24 VDC for acA800-200gm/gc)			
Power Consumption (PoE/AUX)	2.6 W/2.4 W	3.6 W/3.3 W	3.5 W/3.1 W	2.5 W/2.2 W
Weight (typical)	<90 g			
Conformity	CE, FCC, IP30, RoHS, PoE (IEEE 802.3af), UL (in preparation for acA800-200gm/gc)			
Software Environment				
Driver	Basler pylon Camera Software Suite or 3rd party GigE Vision Software			
Operating System	Windows, Linux - 32 bit and 64 bit			
Conformity	GigE Vision, GenICam			

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*For definition of Frame Rate, please see User's Manual

TECHNICAL DETAILS

Specifications

Basler ace	acA1300-30gm/gc	acA1280-60gm/gc	acA1300-60gm/gc	acA1300-60gmNIR
Camera				
Resolution (H × V pixels)	1296 × 966	1280 × 1024	1280 × 1024	1280 × 1024
Sensor	Sony ICX445	EV76C560	EV76C560	EV76C661
Sensor Size (optical)	1/3″	1/1.8″	1/1.8″	1/1.8″
Sensor Technology	Progressive Scan CCD	CMOS, rolling shutter	CMOS, global and rolling	CMOS, global and rolling
Pixel Size [µm²]	3.75 × 3.75	5.3 × 5.3	5.3 × 5.3	5.3 × 5.3
Frame Rate [fps]*	30	60	60	60
Mono/Color	Mono/Color	Mono/Color	Mono/Color	Mono NIR-enhanced
Video Output Format	Mono (8, 12, 12 Packed), Bayer BG (8, 12, 12 Packed), YUV 4:2:2 (Packed, YUYV Packed)	Mono (8, 12, 12 Packed), Bayer RG (8, 12, 12 Packed), YUV 4:2:2 (Packed, YUYV Packed)	Mono (8, 12, 12 Packed), Bayer RG (8, 12, 12 Packed), YUV 4:2:2 (Packed, YUYV Packed)	Mono (8, 12, 12 Packed), YUV 4:2:2 (Packed, YUYV Packed)
Interface	Fast Ethernet (100 Mbit/s) or Gigabit Ethernet (1000 Mbit/s)			
Synchronization	Via external trigger, via the Ethernet connection or free run			
Exposure Control	Via external trigger or programmable via the camera API			
Mechanical/Electrical				
Housing Size (L × W × H)	42 mm × 29 mm × 29 mm			
Housing Temperature	Up to 50 °C			
Lens Mount	C, CS	C	C, CS	C, CS
Digital I/O	1 opto-isolated input/1 opto-isolated output			
Power Requirements	Via Power over Ethernet (IEEE 802.3af) or + 12VDC (±10%) via the camera´s 6-pin Hirose connector			
Power Consumption (PoE/AUX)	2.5/2.2 W	<3.0 W	<3.0 W	<3.0 W
Weight (typical)	<90 g			
Conformity	CE, FCC, IP30, RoHS, PoE (IEEE 802.3af), UL			
Software Environment				
Driver	Basler pylon Camera Software Suite or 3rd party GigE Vision Software			
Operating System	Windows, Linux - 32 bit and 64 bit			
Conformity	GigE Vision, GenICam			

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TECHNICAL DETAILS

Specifications

Basler ace	acA1300-75gm/gc (NEW)	acA1600-20gm/gc	acA1600-60gm/gc	acA1920-25gm/gc
Camera				
Resolution (H × V pixels)	1280 × 1024	1626 × 1236	1600 × 1200	1920 × 1080
Sensor	PYTHON 1300	Sony ICX274	EV76C570	Aptina MT9P
Sensor Size (optical)	1/2″	1/1.8″	1/1.8″	1/3.7″
Sensor Technology	CMOS, global shutter	Progressive Scan CCD	CMOS, global shutter	CMOS, rolling shutter
Pixel Size [µm²]	4.8 × 4.8	4.4 × 4.4	4.5 × 4.5	2.2 × 2.2
Frame Rate [fps]*	88	20	60	25
Mono/Color	Mono/Color	Mono/Color	Mono/Color	Mono/Color
Video Output Format	Mono (8, 10, 10 Packed), Bayer BG (8, 10, 10 Packed), YUV 4:2:2 (Packed, YUYV Packed)	Mono (8, 12, 12 Packed), Bayer BG (8, 12, 12 Packed), YUV 4:2:2 (Packed, YUYV Packed)	Mono (8, 12, 12 Packed), Bayer RG (8, 12, 12 Packed), YUV 4:2:2 (Packed, YUYV Packed)	Mono (8, 12, 12 Packed), Bayer BG (8, 12, 12 Packed), YUV 4:2:2 (Packed, YUYV Packed)
Interface	Fast Ethernet (100 Mbit/s) or Gigabit Ethernet (1000 Mbit/s)			
Synchronization	Via external trigger, via the Ethernet connection or free run			
Exposure Control	Via external trigger or programmable via the camera API			
Mechanical/Electrical				
Housing Size (L × W × H)	42 mm × 29 mm × 29 mm			
Housing Temperature	Up to 50 °C			
Lens Mount	C	C, CS	C	C
Digital I/O	1 opto-isolated input/1 opto-isolated output + 1 GPIO (only acA1300-75gm/gc)			
Power Requirements	Via Power over Ethernet (IEEE 802.3af) or + 12VDC (±10%) via the camera´s 6-pin Hirose connector (+24 VDC for acA1300-75gm/gc)			
Power Consumption (PoE/AUX)	3.5 W/3.1 W	3.4 W/2.9 W	<3.0 W	2.5 W/2.2 W
Weight (typical)	<90 g			
Conformity	CE, FCC, IP30, RoHS, PoE (IEEE 802.3af), UL			
Software Environment				
Driver	Basler pylon Camera Software Suite or 3rd party GigE Vision Software			
Operating System	Windows, Linux - 32 bit and 64 bit			
Conformity	GigE Vision, GenICam			

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TECHNICAL DETAILS

Specifications

Basler ace	NEW acA1920-40gm/gc	NEW acA1920-48gm/gc	acA1920-50gm/gc	acA2000-50gm/gc
Camera				
Resolution (H × V pixels)	1920 × 1200	1920 × 1200	1920 × 1200	2048 × 1088
Sensor	Sony IMX249	PYTHON 2000	Sony IMX174	CMOSIS CMV2000
Sensor Size (optical)	1/1.2"	2/3"	1/1.2"	2/3"
Sensor Technology	CMOS, global shutter	CMOS, global shutter	CMOS, global shutter	CMOS, global shutter
Pixel Size [µm²]	5.86 × 5.86	4.8 × 4.8	5.86 × 5.86	5.5 × 5.5
Frame Rate [fps]*	42	50	50	50
Mono/Color	Mono/Color	Mono/Color	Mono/Color	Mono/Color
Video Output Format	Mono (8, 12, 12 Packed), Bayer RG (8, 12, 12 Packed), YUV 4:2:2 (Packed, YUYV Packed)	Mono (8, 10, 10 Packed), Bayer BG (8, 10, 10 Packed), YUV 4:2:2 (Packed, YUYV Packed)	Mono (8, 12, 12 Packed), Bayer RG (8, 12, 12 Packed), YUV 4:2:2 (Packed, YUYV Packed)	Mono (8, 12, 12 Packed), Bayer GR (8, 12, 12 Packed), YUV 4:2:2 (Packed, YUV 4:2:2 YUYV Packed)
Interface	Fast Ethernet (100 Mbit/s) or Gigabit Ethernet (1000 Mbit/s)			
Synchronization	Via external trigger, via the Ethernet connection or free run			
Exposure Control	Via external trigger or programmable via the camera API			
Mechanical/Electrical				
Housing Size (L × W × H)	42 mm × 29 mm × 29 mm			
Housing Temperature	Up to 50 °C			
Lens Mount	C	C	C	C
Digital I/O	1 opto-isolated input/1 opto-isolated output + 1 GPIO (only acA1920-40gm/gc, acA1920-48gm/gc, acA1920-50gm/gc)			
Power Requirements	Via Power over Ethernet (IEEE 802.3af) or + 12VDC (±10%) via the camera´s 6-pin Hirose connector (+24 VDC for acA1920-40gm/gc, acA1920-48gm/gc, acA1920-50gm/gc)			
Power Consumption (PoE/AUX)	3.4 W/3.1 W	4.1 W/3.6 W	3.6 W/3.2 W	~3.5 W
Weight (typical)	<90 g			
Conformity	CE, FCC, IP30, RoHS, PoE (IEEE 802.3af), UL (in preparation for acA1920-40gm/gc, acA1920-48gm/gc, acA1920-50gm/gc)			
Software Environment				
Driver	Basler pylon Camera Software Suite or 3rd party GigE Vision Software			
Operating System	Windows, Linux - 32 bit and 64 bit			
Conformity	GigE Vision, GenICam			

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TECHNICAL DETAILS

Specifications

Basler ace	acA2000-50gmNIR	acA2040-25gm/gc	acA2040-25gmNIR
Camera			
Resolution (H × V pixels)	2048 × 1088	2048 × 2048	2048 × 2048
Sensor	CMOSIS CMV2000 NIR-enhanced	CMOSIS CMV4000	CMOSIS CMV4000 NIR-enhanced
Sensor Size (optical)	2/3"	1"	1"
Sensor Technology	CMOS, global shutter	CMOS, global shutter	CMOS, global shutter
Pixel Size [µm²]	5.5 × 5.5	5.5 × 5.5	5.5 × 5.5
Frame Rate [fps]*	50	25	25
Mono/Color	Mono NIR-enhanced	Mono/Color	Mono NIR-enhanced
Video Output Format	Mono (8, 12, 12 Packed), YUV 4:2:2 (Packed, YUYV Packed)	Mono (8, 12, 12 Packed), Bayer GR (8, 12, 12 Packed), YUV 4:2:2 (Packed, YUY Packed)	Mono (8, 12, 12 Packed), YUV 4:2:2 (Packed, YUYV Packed)
Interface	Fast Ethernet (100 Mbit/s) or Gigabit Ethernet (1000 Mbit/s)		
Synchronization	Via external trigger, via the Ethernet connection or free run		
Exposure Control	Via external trigger or programmable via the camera API		
Mechanical/Electrical			
Housing Size (L × W × H)	42 mm × 29 mm × 29 mm		
Housing Temperature	Up to 50 °C		
Lens Mount	C	C	C
Digital I/O	1 opto-isolated input/1 opto-isolated output		
Power Requirements	Via Power over Ethernet (IEEE 802.3af) or + 12VDC (±10%) via the camera´s 6-pin Hirose connector		
Power Consumption (PoE/AUX)	2.8 W/2.5 W	2.8 W/2.5 W	2.9 W/2.6 W
Weight (typical)	<90 g		
(Conformity	CE, FCC, IP30, RoHS, PoE (IEEE 802.3af), UL (in preparation for acA1920-50gm/gc)		
Software Environment			
Driver	Basler pylon Camera Software Suite or 3rd party GigE Vision Software		
Operating System	Windows, Linux - 32 bit and 64 bit		
Conformity	GigE Vision, GenICam		

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TECHNICAL DETAILS

Specifications

Basler ace	acA2500-14gm/gc	NEW acA2500-20gm/gc	acA3800-10gm/gc	acA4600-7gc
Camera				
Resolution (H × V pixels)	2592 × 1944	2590 × 2048	3856 × 2764	4608 × 3288
Sensor	Aptina MT9P031	PYTHON 5000	Aptina MT9J003	Aptina MT9F002
Sensor Size (optical)	1/2.5"	1"	1/2.3"	1/2.3"
Sensor Technology	CMOS, rolling shutter	CMOS, global shutter	CMOS, rolling shutter	CMOS, rolling shutter
Pixel Size [µm²]	2.2 × 2.2	4,8 × 4,8	1.67 × 1.67	1.4 × 1.4
Frame Rate [fps]*	14	21	10	7
Mono/Color	Mono/Color	Mono/Color	Mono/Color	Color
Video Output Format	Mono (8, 12, 12 Packed), Bayer GB (8, 12, 12 Packed), YUV 4:2:2 (Packed, YUYV Packed)	Mono (8, 10, 10 Packed), Bayer BG (8, 10, 10 Packed), YUV 4:2:2 (Packed, YUYV Packed)	Mono (8, 12, 12 Packed), Bayer BG (8, 12, 12 Packed), YUV 4:2:2 (Packed, YUYV Packed)	Mono 8, Bayer BG (8, 12, 12 Packed), YUV 4:2:2 (Packed, YUYV Packed)
Interface	Fast Ethernet (100 Mbit/s) or Gigabit Ethernet (1000 Mbit/s)			
Synchronization	Via external trigger, via the Ethernet connection or free run			
Exposure Control	Via external trigger or programmable via the camera API			
Mechanical/Electrical				
Housing Size (L × W × H)	42 mm × 29 mm × 29 mm			
Housing Temperature	Up to 50 °C			
Lens Mount	C, CS	C	C	C
Digital I/O	1 opto-isolated input/1 opto-isolated output + 1 GPIO (only acA2500-20gm/gc)			
Power Requirements	Via Power over Ethernet (IEEE 802.3af) or + 12VDC (±10%) via the camera´s 6-pin Hirose connector (+24 VDC for acA2500-20gm/gc)			
Power Consumption (PoE/AUX)	2.5 W/2.2 W	4.1 W/3.6 W	3.5 W/3.3 W	3.5 W/3.3 W
Weight (typical)	<90 g			
Conformity	CE, FCC, IP30, RoHS, PoE (IEEE 802.3af), UL (in preparation for acA2500-20gm/gc)			
Software Environment				
Driver	Basler pylon Camera Software Suite or 3rd party GigE Vision Software			
Operating System	Windows, Linux - 32 bit and 64 bit			
Conformity	GigE Vision, GenICam			

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TECHNICAL DETAILS

Specifications

Basler ace	acA640-90um/uc	acA640-120um/uc	NEW acA640-750um/uc	NEW acA800-510um/uc	acA1300-30um/uc
Camera					
Resolution (H×V pixels)	659×494	659×494	640×480	800×600	1296×966
Sensor	Sony ICX424	Sony ICX618	PYTHON 300	PYTHON 500	Sony ICX445
Sensor Size (optical)	1/3″	1/4″	1/4″	1/3.6″	1/3″
Sensor Technology	Progressive Scan CCD	Progressive Scan CCD	CMOS, global shutter	CMOS, global shutter	Progressive Scan CCD
Pixel Size [µm²]	7.4×7.4	5.6×5.6	4.8×4.8	4.8×4.8	3.75×3.75
Frame Rate [fps]*	90	120	751	511	30
Mono/Color	Mono/Color	Mono/Color	Mono/Color	Mono/Color	Mono/Color
Video Output Format	Mono (8, 12, 12 Packed), YCbCr422_8, Bayer BG (8, 12, 12 Packed), RGB8, BGR8	Mono (8, 12, 12 Packed), YCbCr422_8, Bayer BG (8, 12, 12 Packed), RGB8, BGR8	Mono (8,10,10 Packed), YCbCr 422_8, Bayer BG (8,10,10 Packed), RGB8, BGR8	Mono (8,10,10 Packed), YCbCr 422_8, Bayer BG (8,10,10 Packed), RGB8, BGR8	Mono (8, 12, 12 Packed), YCbCr422_8, Bayer BG (8, 12, 12 Packed), RGB8, BGR8
Interface	USB 3.0				
Synchronization	Via external trigger or free-run				
Exposure Control	Via external trigger or programmable via the camera API				
Mechanical/Electrical					
Housing Size (L×W×H)	29.3 mm×29 mm×29 mm				
Housing Temperature	Up to 50 °C				
Lens Mount	C, CS	C, CS	C	C	C, CS
Digital I/O	1 opto-isolated input + 1 opto-isolated output + 2 Fast-GPIO (configurable as In/Out)				
Power Requirements	Via USB 3.0 interface				
Power Suspend Mode	Yes, less than 0.02 W, configurable				
Power Consumption	3 W	3 W	3.4 W	3.4 W	2.5 W
Weight (typical)	<80 g				
Conformity	CE, FCC, IP30, RoHS, UL (in preparation for acA640-750um/uc, acA800-510um/uc)				
Software Environment					
Driver	Basler pylon Camera Software Suite or 3rd party USB3 Vision Software				
Operating System	Windows, Linux - 32 bit and 64 bit				
Conformity	USB3 Vision, GenICam				

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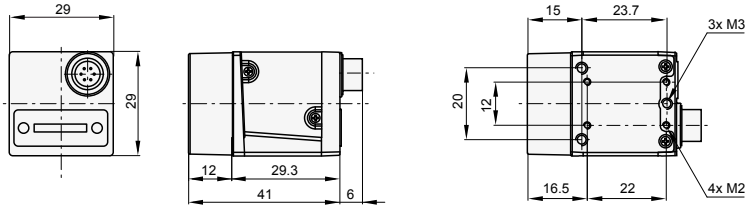
Dimensions (in mm)



TECHNICAL DETAILS

Specifications

Basler ace	NEW acA1300-200um/uc	acA1600-20um/uc	acA1920-25um/uc	NEW acA1920-40um/uc	NEW acA1920-150um/uc
Camera					
Resolution (H × V pixels)	1280 × 1024	1628 × 1236	1920 × 1080	1920 × 1200	1920 × 1200
Sensor	PYTHON 1300	Sony ICX274	Aptina MT9P031	Sony IMX249	PYTHON 2000
Sensor Size (optical)	1/2″	1/1.8″	1/3.7″	1/1.2″	2/3″
Sensor Technology	CMOS, global shutter	Progressive Scan CCD	CMOS, rolling shutter	CMOS, global shutter	CMOS, global shutter
Pixel Size [µm²]	4.8 × 4.8	4.4 × 4.4	2.2 × 2.2	5.86 × 5.86	4.8 × 4.8
Frame Rate [fps]*	203	20	25	41	150
Mono/Color	Mono/Color	Mono/Color	Mono/Color	Mono/Color	Mono/Color
Video Output Format	Mono (8,10,10 Packed), YCbCr 422_8, Bayer BG (8,10,10 Packed), RGB8, BGR8	Mono (8, 12, 12 Packed), YCbCr422_8, Bayer BG (8, 12, 12 Packed), RGB8, BGR8	Mono (8, 12, 12 Packed), YCbCr422_8, Bayer GB (8, 12, 12 Packed)	Mono (8,12,12 Packed), YCbCr 422_8, Bayer RG (8,12,12 Packed), RGB8, BGR8	Mono (8,10,10 Packed), YCbCr 422_8, Bayer BG (8,10,10 Packed), RGB8, BGR8
Interface	USB 3.0				
Synchronization	Via external trigger or free-run				
Exposure Control	Via external trigger or programmable via the camera API				
Mechanical/Electrical					
Housing Size (L × W × H)	29.3 mm × 29 mm × 29 mm				
Housing Temperature	Up to 50 °C				
Lens Mount	C	C, CS	C, CS	C	C
Digital I/O	1 opto-isolated input + 1 opto-isolated output + 2 Fast-GPIO (configurable as In/Out)				
Power Requirements	Via USB 3.0 interface				
Power Suspend Mode	Yes, less than 0.02 W, configurable				
Power Consumption	3.4 W	3.5 W	2.2 W	2.9 W	4.3 W
Weight (typical)	<80 g				
Conformity	CE, FCC, IP30, RoHS, UL (in preparation for acA1300-200um/uc, acA1920-40um/uc, acA1920-150um/uc)				
Software Environment					
Driver	Basler pylon Camera Software Suite or 3rd party USB3 Vision Software				
Operating System	Windows, Linux - 32 bit and 64 bit				
Conformity	USB3 Vision, GenICam				

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.

*For definition of Frame Rate, please see User's Manual

TECHNICAL DETAILS

Specifications

Basler ace	acA1920-155um/uc	acA2000-165um/uc	acA2000-165umNIR	acA2040-90um/uc	acA2040-90umNIR
Camera					
Resolution (H × V pixels)	1920 × 1200	2048 × 1088	2048 × 1088	2048 × 2048	2048 × 2048
Sensor	Sony IMX174	CMOSIS CMV2000	CMOSIS CMV2000 NIR-enhanced	CMOSIS CMV4000	CMOSIS CMV4000 NIR-enhanced
Sensor Size (optical)	1/1.2"	2/3"	2/3"	1"	1"
Sensor Technology	CMOS, global shutter	CMOS, global shutter	CMOS, global shutter	CMOS, global shutter	CMOS, global shutter
Pixel Size [µm²]	5.86 × 5.86	5.5 × 5.5	5.5 × 5.5	5.5 × 5.5	5.5 × 5.5
Frame Rate [fps]*	164	165	165	90	90
Mono/Color	Mono/Color	Mono/Color	Mono NIR-enhanced	Mono/Color	Mono NIR-enhanced
Video Output Format	Mono (8,12,12 Packed), YCbCr 422_8, Bayer RG (8,12,12 Packed), RGB8, BGR8	Mono (8, 12, 12 Packed), Bayer BG (8, 12, 12 Packed)	Mono (8, 12, 12 Packed)	Mono (8, 12, 12 Packed), Bayer BG (8, 12, 12 Packed)	Mono (8, 12, 12 Packed)
Interface	USB 3.0				
Synchronization	Via external trigger or free-run				
Exposure Control	Via external trigger or programmable via the camera API				
Mechanical/Electrical					
Housing Size (L × W × H)	29.3 mm × 29 mm × 29 mm				
Housing Temperature	Up to 50 °C	Up to 50 °C	Up to 50 °C	Up to 60 °C	
Lens Mount	C	C	C	C	C
Digital I/O	1 opto-isolated input + 1 opto-isolated output + 2 Fast-GPIO (configurable as In/Out)				
Power Requirements	Via USB 3.0 interface				
Power Suspend Mode	Yes, less than 0.02 W, configurable				
Power Consumption	3.8 W	3 W	3 W	3 W	3 W
Weight (typical)	<80 g				
Conformity	CE, FCC, IP30, RoHS, UL (in preparation for acA1920-155um/uc)				
Software Environment					
Driver	Basler pylon Camera Software Suite or 3rd party USB3 Vision Software				
Operating System	Windows, Linux - 32 bit and 64 bit				
Conformity	USB3 Vision, GenICam				

Specifications are subject to change without prior notice.
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*For definition of Frame Rate, please see User's Manual

TECHNICAL DETAILS

Specifications

Basler ace	acA2500-14um/uc	NEW acA2500-60um/uc	acA3800-14um/uc	acA4600-10uc
Camera				
Resolution (H×V pixels)	2590×1942	2590×2048	3856×2764	4608×3288
Sensor	Aptina MT9P	PYTHON 5000	Aptina MT9J003	Aptina MT9F002
Sensor Size (optical)	1/2.5"	1"	1/2.3"	1/2.3"
Sensor Technology	CMOS, rolling shutter	CMOS, global shutter	CMOS, rolling shutter	CMOS, rolling shutter
Pixel Size [µm²]	2.2×2.2	4.8×4.8	1.67×1.67	1.4×1.4
Frame Rate [fps]*	14	60	14	10
Mono/Color	Mono/Color	Mono/Color	Mono/Color	Color
Video Output Format	Mono (8, 12, 12 Packed), YCbCr422_8, Bayer GB (8, 12, 12 Packed)	Mono (8,10,10 Packed), YCbCr 422_8, Bayer BG (8,10,10 Packed), RGB8, BGR8	Mono (8, 12, 12 Packed), YCbCr422_8, Bayer BG (8, 12, 12 Packed)	Mono 8, YCbCr422_8, Bayer BG (8, 12, 12 Packed)
Interface	USB 3.0			
Synchronization	Via external trigger or free-run			
Exposure Control	Via external trigger or programmable via the camera API			
Mechanical/Electrical				
Housing Size (L×W×H)	29.3 mm×29 mm×29 mm			
Housing Temperature	Up to 50 °C			
Lens Mount	C, CS	C	C	C
Digital I/O	1 opto-isolated input + 1 opto-isolated output + 2 Fast-GPIO (configurable as In/Out)			
Power Requirements	Via USB 3.0 interface			
Power Suspend Mode	Yes, less than 0.02 W, configurable			
Power Consumption (at 5C)	2.2 W	4.2 W	3.8 W	3.8 W
Weight (typical)	<80 g			
Conformity	CE, FCC, IP30, RoHS, UL (in preparation for acA2500-60um/uc)			
Software Environment				
Driver	Basler pylon Camera Software Suite or 3rd party USB3 Vision Software			
Operating System	Windows, Linux - 32 bit and 64 bit			
Conformity	USB3 Vision, GenICam			

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*For definition of Frame Rate, please see User's Manual

TECHNICAL DETAILS

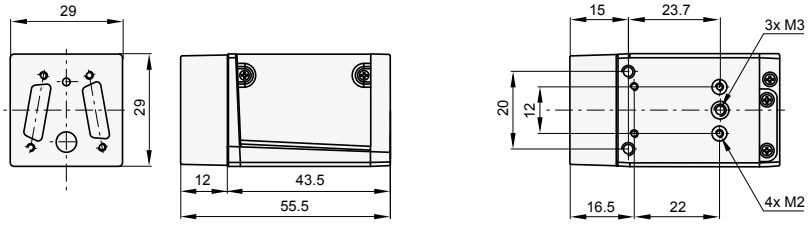
Specifications

Basler ace	acA2000-340km/kc	acA2000-340kmNIR	acA2040-180km/kc	acA2040-180kmNIR
Camera				
Resolution (H×V pixels)	2048×1088	2048×1088	2048×2048	2048×2048
Sensor	CMOSIS CMV2000	CMOSIS CMV2000 NIR-enhanced	CMOSIS CMV4000	CMOSIS CMV4000 NIR-enhanced
Sensor Size (optical)	2/3"	2/3"	1"	1"
Sensor Technology	CMOS, global shutter	CMOS, global shutter	CMOS, global shutter	CMOS, global shutter
Pixel Size [µm²]	5.5×5.5	5.5×5.5	5.5×5.5	5.5×5.5
Frame Rate [fps]*	340	340	180	180
Mono/Color	Mono/Color	Mono NIR-enhanced	Mono/Color	Mono NIR-enhanced
Interface	Camera Link (base, medium, or full)			
Synchronization	Via external trigger or free run			
Exposure Control	Trigger width or timed			
Mechanical/Electrical				
Housing Size (L×W×H)	43.5 mm × 29 mm × 29 mm			
Housing Temperature	Up to 50 °C			
Lens Mount	C	C	C	C
Digital I/O	1 opto-isolated input or output (GPIO)			
Power Requirements	12VDC (±10%), Power over Camera Link (PoCL) or via IO connector			
Power Consumption (typical)	3.0 W			
Weight (typical)	<96 g			
Conformity	CE, FCC, RoHS, GenICam, Camera Link, UL (in preparation)			
Software/Driver				
Driver	Basler pylon Camera Software Suite or 3rd party Camera Link Software			
Operating System	Windows, Linux - 32 bit and 64 bit			
Conformity	Camera Link, GenICam			

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.

*For definition of Frame Rate, please see User's Manual

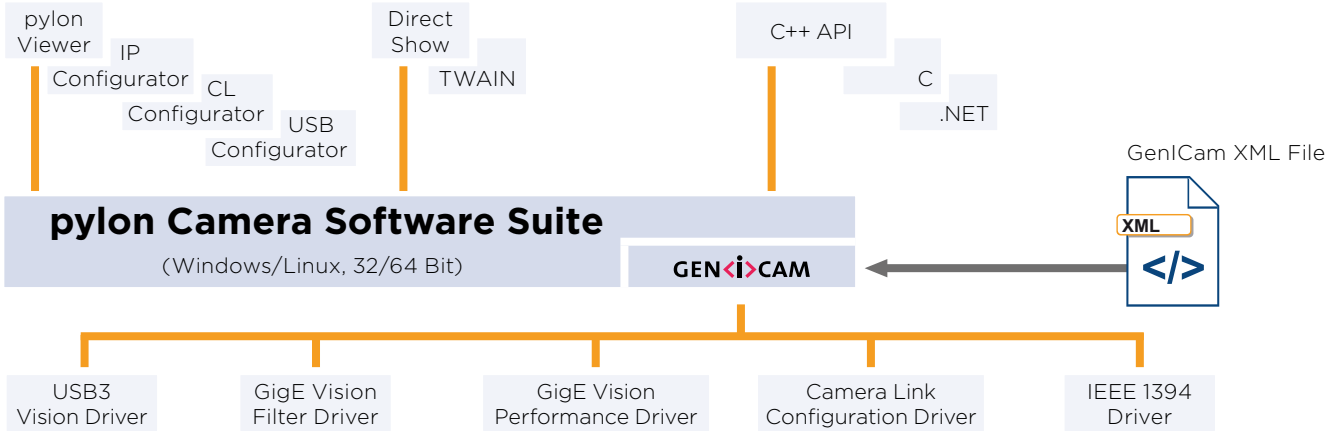
Dimensions (in mm)



Get your free version: www.baslerweb.com/pylon

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 and ARM based systems – at a very low CPU load.



The architecture of the pylon Camera Software Suite is based on GenICam 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 Performance Driver** quickly separates incoming packets carrying image data from other traffic on the network and makes the data available for use by your vision application while requiring the lowest CPU resources. This driver can only be used with network cards that include specific Intel chipsets. The pylon **GigE Vision Filter Driver** supports all kinds of hardware, common GigE network cards, and GigE ports on your motherboard as well.

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 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
- 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.

OTHER INFORMATION

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.

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