Requirements and Compatibility

For user manuals and dimensional drawings, visit the product page resources tab on ni.com.

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Basler ace Cameras

GigE Vision, Camera Link, and USB3 Vision Cameras

- VGA to 5 MP resolution options with CCD, CMOS, and CMOSIS sensors
- Capture rate up to 340 fps
- GigE Vision cameras provide 1 Gbit/s throughput, up to 100 m cable lengths, and support for Power over Ethernet (PoE)

- Camera Link cameras offer minimum delay and jitter times, 5.4 Gbit/s using full configuration, and support for Power over Camera Link (PoCL)
- USB3 Vision cameras provide a plug-and-play interface with up to 400 MB/s bandwidth, and power and data over the same cable
- Optoisolated digital I/O

Overview

Basler is a leading global manufacturer of digital cameras for industrial applications, medical devices, traffic systems, and the video surveillance market.

GigE Vision Cameras

Basler's ace GigE Vision cameras provide a high-value, compact, high-performance, and flexible offering for many applications. They are ideal replacements for analog cameras because of their small form factor and low cost.

GigE Vision is a widely adopted camera interface that takes advantage of standard, inexpensive cables and hardware for easy implementation. The GigE Vision standard offers the most flexibility, with long cable lengths up to 100 m and the ability to connect multiple cameras to a single port using network hubs.

NI-IMAQdx, a high-performance GigE Vision driver (part of NI Vision Acquisition Software), is optimized for Intel Pro 1000 chipsets to help you reduce CPU loads when acquiring from GigE cameras. For the best experience, you can use GigE Vision cameras with the powerful stand-alone NI Embedded Vision System and NI GigE Vision plug-in boards.

Camera Link Cameras

Basler ace cameras offer you clear advantages compared to classic Camera Link models with respect to housing size, weight, power consumption, temperature, and pixel output per second. The PoCL feature further reduces system cost and complexity.

Camera Link is the ideal interface choice for applications that require effective determinism, throughput, and inspection speed, such as semiconductor inspection and medical imaging. NI offers multiple Camera Link frame grabbers that work with Basler ace Camera Link cameras and offer superior performance using NI-IMAQ software.

USB3 Vision Cameras

Basler ace USB3 Vision cameras provide a high-value, compact, high-performance, and flexible offering for many applications. They are ideal replacements for analog cameras because of their small form factor and low cost.

USB3 Vision is a camera interface that leverages standard, inexpensive cables and hardware for easy implementation. The USB3 Vision standard offers a plug-and-play, bus-powered, high-bandwidth interface.

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Requirements and Compatibility

	Driver Information	Software Compatibility

Application and Technology

Basler GigE Vision ace Cameras

Basler ace Cameras	Resolution (H x V pixels)	Sensor	Sensor Technology	Optical Sensor Size (in.)	Pixel Size (m)	Frame Rate	Power Consu (PoE
acA640-90gm/gc	659 x 494	Sony ICX424	Progressive Scan CCD	1/3	7.4 x 7.4	90	3.1 V
acA640-120gm/gc	659 x 494	Sony ICX618	Progressive Scan CCD	1/4	5.6 x 5.6	100	2.3 V
acA645-100gm/gc	659 x 494	Sony ICX414	Progressive Scan CCD	1/2	9.9 x 9.9	100	3.6 V
acA750-30gm/gc	752 x 580	Sony ICX409	Interlaced Scan CCD	1/3	6.5 x 6.25	30	2.5 V
acA780-75gm/gc	782 x 582	Sony ICX415	Progressive Scan CCD	1/2	8.3 x 8.3	75	3.6 V
acA1300-30gm/gc	1296 x 966	Sony ICX445	Progressive Scan CCD	1/3	3.75 x 3.75	30	2.5 V
acA1300-60gm/gc	1280 x 1024	e2v EV76C560	CMOS, Global Shutter	1/1.8	5.3 x 5.3	60	<3.0
acA1600-20gm/gc	1628 x 1236	Sony ICX274	Progressive Scan CCD	1/1.8	4.4 x 4.4	20	3.4 V
acA1600-60gm/gc	1600 x 1200	e2v EV76C570	CMOS, Global Shutter	1/1.8	4.5 x 4.5	60	2.5 V
acA2000-50gm/gc	2048 x 1088	CMOSIS CMV2000	CMOS, Global Shutter	2/3	5.5 x 5.5	50	3.4 V
acA2040-25gm/gc	2048 x 2048	CMOSIS CMV4000	CMOS, Global Shutter	1	5.5 x 5.5	25	3.4 V
acA2500-14gm/gc	2592 x 1944	Aptina MT9P	CMOS, Rolling shutter	1/2.5	2.2 x 2.2	14	2.5 V

Additional Specifications for All ace GigE Vision Cameras

Mono/Color	Mono/Color
Interface	Fast Ethernet (100 Mbit/s) or Gigabit Ethernet (1000 Mbit/s)
Video Output Format	Mono 8, Mono 12, Mono 12 Packed, YUV 4:2:2 Packed, YUV 4:2:2 (YUYV) Packed, Bayer BG 8, Bayer BG 12, Bayer BG 12 Packed, acA750-30gc: Mono 8, YUV 4:2:2 Packed, YUV 4:2:2 (YUYV) Packed Only
Synchronization	Via External Trigger, via the Ethernet Connection, or Free Run
Exposure Control	Via External Trigger or Programmable via the Camera API
Housing Size (L x W x H)	42 mm x 29 mm x 29 mm
Housing Temperature	Up to 50 °C
Lens Mount	C-mount
Digital I/O	1 Optoisolated Input/1 Optoisolated Output
Power Requirements	Via Power over Ethernet (802.3af) or + 12 VDC (±10%) via the Camera's 6-Pin Hirose Connector
Conformity	CE, FCC, IP30, RoHS, PoE (802.3af), UL (in preparation), GigE Vision, GenICam

Basler Camera Link ace Cameras

Basler ace Cameras	Resolution (H x V pixels)	Sensor	Sensor Technology	Optical Sensor Size (in.)	Pixel Size (m)	Frame Rate	Typical Power Consu (W)
acA2000-340km/kc	2048 x 1088	CMOSIS CMV2000	CMOS, Global Shutter	2/3	5.5 x 5.5	340	<3.0
acA2040-180km/kc	2048 x 2048	CMOSIS CMV4000	CMOS, Global Shutter	1	5.5 x 5.5	180	<3.0

Additional Specifications for All ace Camera Link Cameras

Mono/Color	Mono/Color
Interface	Camera Link (Base, Medium, or Full)
Synchronization	Via External Trigger or Free Run
Exposure Control	Trigger Width or Timed
Housing Size (L x W x H)	43.5 mm x 29 mm x 29 mm
Housing Temperature	Up to 50 °C
Lens Mount	C-mount
Digital I/O	1 Optoisolated Input or Output
Power Requirements	12 VDC (±10%), Power over Camera Link (PoCL) or via I/O Connector
Conformity	CE, FCC, RoHS, GenICam, Camera Link, UL (in preparation)

Basler USB3 Vision ace Cameras

Basler ace Cameras	Resolution (H x V pixels)	Sensor	Sensor Technology	Optical Sensor Size (in.)	Pixel Size (m)	Frame Rate	Typical Power Consumpt (W)
acA640-90um/uc	659 x 494	Sony ICX424	Progressive Scan CCD	1/3	7.4 x 7.4	90	2.7
acA640-120um/uc	659 x 494	Sony ICX618	Progressive Scan CCD	1/4	5.6 x 5.6	120	2.2
acA1300-30um/uc	1296 x 966	Sony ICX445	Progressive Scan CCD	1/3	3.75 x 3.75	30	2.4
acA1600-20um/uc	1628 x 1236	Sony ICX274	Progressive Scan CCD	1/1.8	4.4 x 4.4	20	3.2
acA2500-14um/uc	2592 x 1944	Aptina MT9P	CMOS, Rolling Shutter	1/2.5	2.2 x 2.2	14	2.0

Additional Specifications for All ace USB3 Vision Cameras

Mono/Color	Mono/Color
Interface	USB 3.0
Video Output Format	Mono 8, Mono 12, Mono 12 Packed, Bayer BG 8, Bayer BG 12, Bayer BG 12 Packed, YCbCr 422, RGB8, BGR8
Synchronization	Via External Trigger or Free Run
Exposure Control	Via External Trigger or Programmable via the Camera API
Housing Size (L x W x H)	29.3 mm x 29 mm x 29 mm
Housing Temperature	Up to 50 °C
Lens Mount	C-mount
Digital I/O	1 Optoisolated Input + 1 Optoisolated Output + 2 Fast-GPIO (configurable as In/Out)
Power Requirements	Via USB 3.0 Interface
Conformity	USB3 Vision, GenICam, CE, FCC, IP30, RoHS, UL (in preparation), USB3 Vision, USB IF (in preparation)

Support and Services

System Assurance Programs

NI system assurance programs are designed to make it even easier for you to own an NI system. These programs include configuration and deployment services for your NI PXI, CompactRIO, or Compact FieldPoint system. The NI Basic System Assurance Program provides a simple integration test and ensures that your system is delivered completely assembled in one box. When you configure your system with the NI Standard System Assurance Program, you can select from available NI system driver sets and application development environments to create customized, reorderable software configurations. Your system arrives fully assembled and tested in one box with your software preinstalled. When you order your system with the standard program, you also receive system-specific documentation including a bill of materials, an integration test report, a recommended maintenance plan, and frequently asked question documents. Finally, the standard program reduces the total cost of owning an NI system by providing three years of warranty coverage and calibration service. Use the online product advisors at ni.com/advisor to find a system assurance program to meet your needs.

Calibration

NI measurement hardware is calibrated to ensure measurement accuracy and verify that the device meets its published specifications. To ensure the ongoing accuracy of your measurement hardware, NI offers basic or detailed recalibration service that provides ongoing ISO 9001 audit compliance and confidence in your measurements. To learn more about NI calibration services or to locate a qualified service center near you, contact your local sales office or visit ni.com/calibration.

Technical Support

Get answers to your technical questions using the following National Instruments resources.

- **Support** - Visit ni.com/support to access the NI KnowledgeBase, example programs, and tutorials or to contact our applications engineers who are located in NI sales offices around the world and speak the local language.
- **Discussion Forums** - Visit forums.ni.com for a diverse set of discussion boards on topics you care about.
- **Online Community** - Visit community.ni.com to find, contribute, or collaborate on customer-contributed technical content with users like you.

Repair

While you may never need your hardware repaired, NI understands that unexpected events may lead to necessary repairs. NI offers repair services performed by highly trained technicians who quickly return your device with the guarantee that it will perform to factory specifications. For more information, visit ni.com/repair.

Training and Certifications

The NI training and certification program delivers the fastest, most certain route to increased proficiency and productivity using NI software and hardware. Training builds the skills to more efficiently develop robust, maintainable applications, while certification validates your knowledge and ability.

- **Classroom training in cities worldwide** - the most comprehensive hands-on training taught by engineers.
- **On-site training at your facility** - an excellent option to train multiple employees at the same time.
- **Online instructor-led training** - lower-cost, remote training if classroom or on-site courses are not possible.
- **Course kits** - lowest-cost, self-paced training that you can use as reference guides.
- **Training memberships** and training credits - to buy now and schedule training later.

Visit ni.com/training for more information.

Extended Warranty

NI offers options for extending the standard product warranty to meet the life-cycle requirements of your project. In addition, because NI understands that your requirements may change, the extended warranty is flexible in length and easily renewed. For more information, visit ni.com/warranty.

OEM

NI offers design-in consulting and product integration assistance if you need NI products for OEM applications. For information about special pricing and services for OEM customers, visit ni.com/oem.

Alliance

Our Professional Services Team is comprised of NI applications engineers, NI Consulting Services, and a worldwide National Instruments Alliance Partner program of more than 700 independent consultants and integrators. Services range from start-up assistance to turnkey system integration. Visit ni.com/alliance.

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