



Baumer
Passion for Sensors

Digital industrial cameras

Capture the essential.



Inspired by nature – our technology as evolution.



The human eye can discern about 100 shades of gray. Our cameras can distinguish more than 4,000.

We can see no more than 16 individual images per second, but our cameras can capture more than 1,000.

Our cameras never get tired.

Simply focused on the essentials.

Baumer is a global leader in sensor solutions for factory and process automation. More than 2,300 employees in 37 subsidiaries in 19 countries are at your service across the globe.

Industrial image processing is an important business for us. Leading in innovation, we have been providing high-performance digital cameras for PC-based image processing systems and intuitive vision sensors for over 15 years.

Merging cutting-edge technologies with customer-focused consultancy has made us a premier global provider of high-quality industrial cameras. Our customers benefit from a diverse portfolio of sophisticated products for many different applications across varied industries. We are committed to long-term availability of our cameras to make sure our customers will obtain a high return on their investments in vision systems.

We develop customer-focused products, anticipate trends and shape the market by pointing the way with technology innovations. We put a particular emphasis on high performance, outstanding quality and durability as well as easy system integration.

Where standard products come to their limits, we develop market-oriented, customised components in close cooperation with our customers. The result: Your decisive competitive edge.

High-performance industrial cameras.

High frame rates, exceptional image quality and ease of integration – that's what our industrial cameras stand for. Their robust, industrial design is the basis for long-term stability and precise image analysis in your application.

The portfolio includes CCD- and CMOS-based matrix cameras in color and monochrome versions with resolutions ranging from VGA to 20 megapixel. Our many years of expertise make us understand your requirements to provide the optimum product for your application.

GiGE
VISION

USB
VISION

CAMERA
Link



GEN*<i>i*>CAM

VisiLine® series

VisiLine® IP

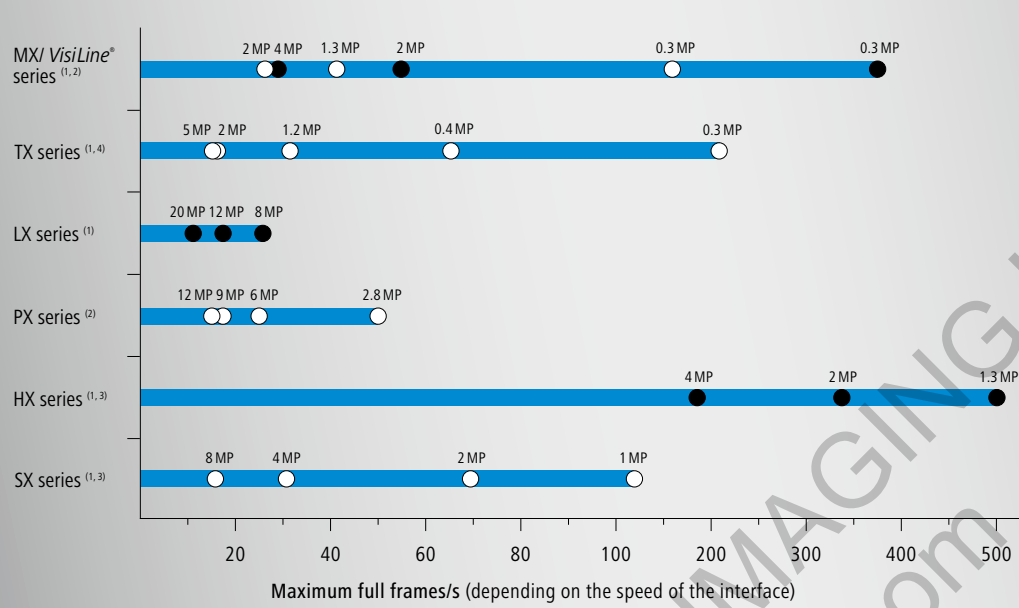
MX series

LX series



www.baumer.com/cameras

Find the best matching camera series.

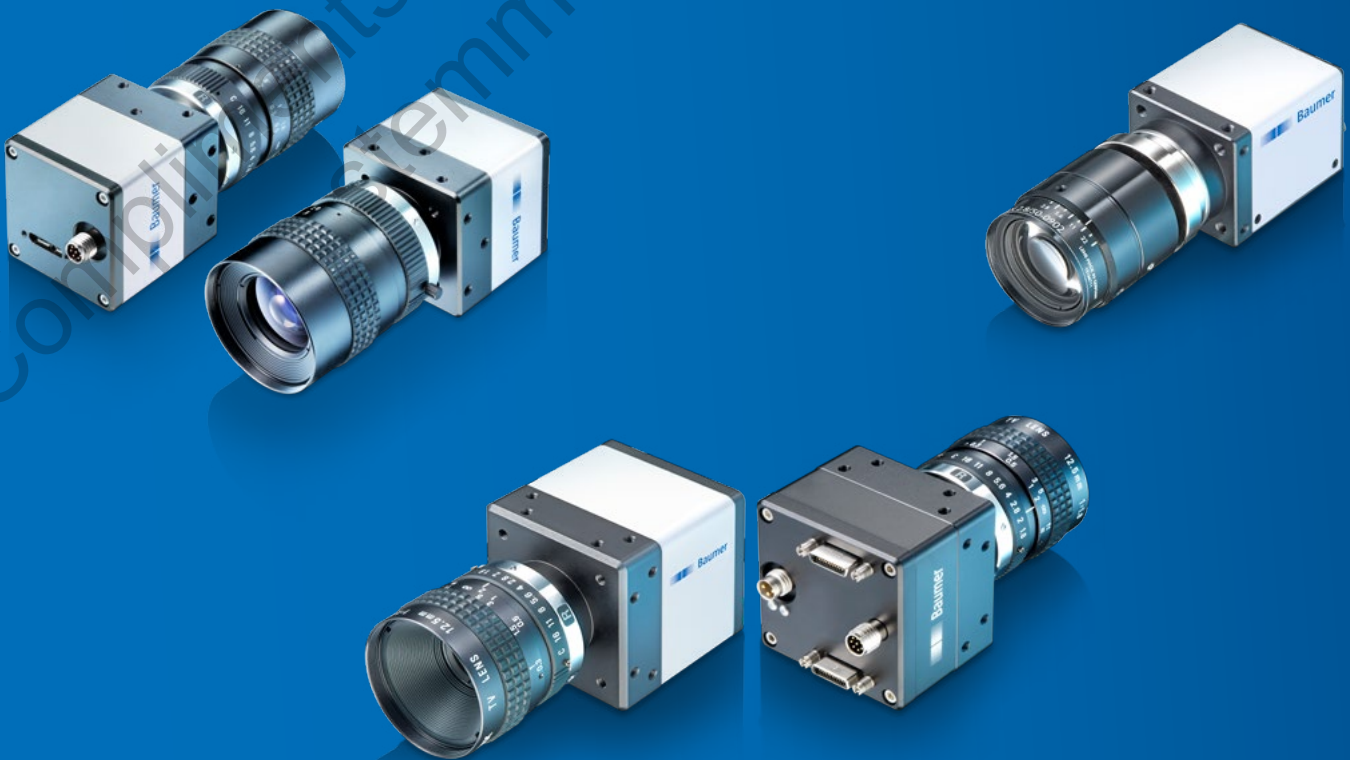


PX series

SX series

HX series

TX series



Perfect image quality ensures your competitive advantage in automated production.

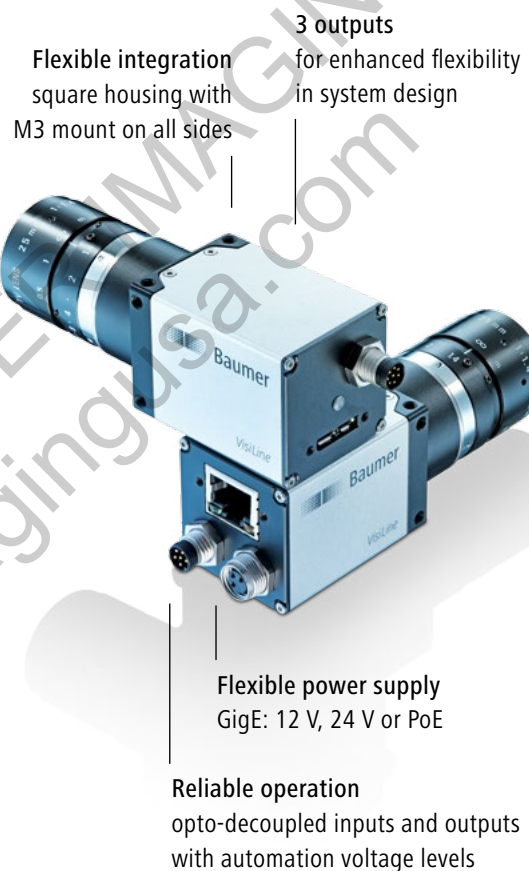
Proven products made even better.

With the *VisiLine*® camera series you are relying on innovative technologies and the proven quality of our successful TX series. Consistent further enhancement has upgraded the cameras in every aspect: higher frame rates with even better image quality and more functionality.

The new camera models incorporate everything that makes it easier to solve your image processing tasks. Color comparison as well as FPN correction and integrated HDR with the CMOS models facilitate efficient image analysis. Multi I/O, PoE and replicable user sets will ease system integration even further.

VisiLine® series

- Up to 4 megapixel and 373 fps
- CCD and CMOS sensors
- Industry-capable design with M8 connection
- IP 40 protection



GigE
VISION

USB
VISION

Camera Type	Model Variants		Sensor Type	Sensor	Resolution [px]	Pixel Size [µm]	Full Frames [fps]	
	Mono	Color					GigE Vision®	USB3 Vision™
VLG-02 / VLU-02	•	•	1/4" CCD	SONY ICX618	656 × 490	5.6 × 5.6	160	160
VLG-03 / VLU-03 ¹⁾	•	•	1/3" CMOS	CMOSIS CMV300	640 × 480	7.4 × 7.4	373	373
VLG-12 / VLU-12	•	•	1/3" CCD	SONY ICX445	1288 × 960	3.75 × 3.75	42	42
VLG-20	•	•	1/1.8" CCD	SONY ICX274	1624 × 1228	4.4 × 4.4	27	—
VLG-22	•	•	2/3" CMOS	CMOSIS CMV2000	2040 × 1084	5.5 × 5.5	55	—
VLG-23 ²⁾	•	•	1/1.2" CMOS	SONY IMX174	1920 × 1212	5.86 × 5.86	50	—
VLG-40	•	•	1" CMOS	CMOSIS CMV4000	2040 × 2044	5.5 × 5.5	29	—

¹⁾ available Q1/2015 ²⁾ available beginning Q2/2015

Reproducible
measured values
and image quality

Flexible board level cameras.

Based on the *VisiLine*® platform, cameras of the MX series are particularly developed for use in embedded systems. The remote sensor circuit board is connected to the system circuit board via flexprint to make the board level cameras fit in almost any installation space.

USB 3.0 camera models provide you with simple Plug & Play functionality and a single-cable solution. GigE cameras master a transmission distance up to 100 meter cable length and support PoE.

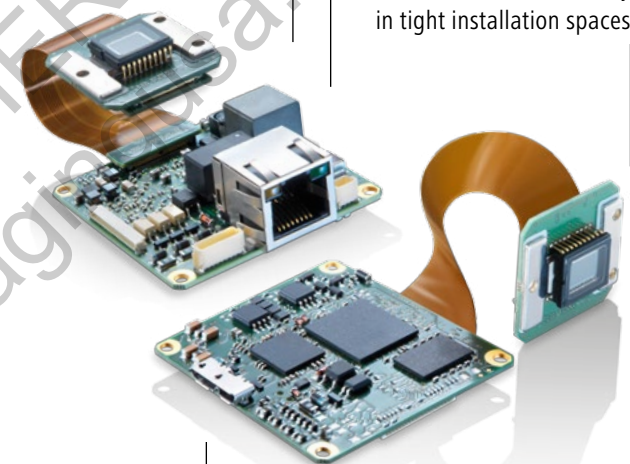
MX series

- Up to 4 megapixel and 373 fps
- CCD and CMOS sensors
- Multi I/O for increased flexibility
- CMOS models with FPN correction and HDR

Digital, optically decoupled
inputs and outputs
reliable protection
against overvoltage

External power supply
12 or 24 volt

Remote sensor circuit board
maximum flexibility
in tight installation spaces



USB3 Vision™
for reliable system integration

GigE
VISION

USB
VISION

Camera Type	Model Variants		Sensor Type	Sensor	Resolution [px]	Pixel Size [µm]	Full Frames [fps]	
	Mono	Color					GigE Vision®	USB3 Vision™
MXG02 / MXU02	•	•	1/4" CCD	SONY ICX618	656 × 490	5.6 × 5.6	160	160
MXGC03 ¹⁾	•	•	1/3" CMOS	CMOSIS CMV300	640 × 480	7.4 × 7.4	373	—
MXG12 / MXU12	•	•	1/3" CCD	SONY ICX445	1288 × 960	3.75 × 3.75	42	42
MXG20 / MXU20	•	•	1/1.8" CCD	SONY ICX274	1624 × 1228	4.4 × 4.4	27	27
MXGC20 / MXUC20	•	•	2/3" CMOS	CMOSIS CMV2000	2040 × 1084	5.5 × 5.5	55	55
MXGC40 / MXUC40	•	•	1" CMOS	CMOSIS CMV4000	2040 × 2044	5.5 × 5.5	29	29

¹⁾ available Q1/2015

Image-controlled,
high-precision gripping
and positioning sequences.

Protected in harsh environments.

VisiLine® IP protected cameras are ideal for applications with rough ambient conditions. The IP 65 and IP 67 housings withstand both moisture and particulate contamination. They protect all critical camera components as well as the lens and eliminate the need for additional protective enclosures. The sophisticated mechanical design defies shock and vibration and ensures image acquisition with long-term stable reproducibility.

Thanks to high IP protection, light weight, robust design and single-cable solution capabilities by PoE the *VisiLine*® IP protected cameras match particularly the application requirements in robotics.

VisiLine® IP cameras

- Up to 4 megapixel and 160 fps
- Standard M12 connector
- Power supply 12 V, 24 V or PoE
- Vibration 10 g, shock 100 g

Precise positioning
centered optical axis and
stable sensor position

IP-rated housing
protection IP 65/67 and
only 220 g in weight

Flexible integration
square housing with M3 mount
on all sides and modular
IP lens protection



Cost-efficient single-cable solution
PoE Ethernet cable for robotics
up to 100 m length



Camera Type	Model Variants		Sensor Type	Sensor	Resolution [px]	Pixel Size [µm]	Full Frames [fps]
	Mono	Color					GigE Vision®
VLG-02.I	•	•	1/4" CCD	SONY ICX618	656 × 490	5.60 × 5.6	160
VLG-12.I	•	•	1/3" CCD	SONY ICX445	1288 × 960	3.75 × 3.75	42
VLG-20.I	•	•	1/1.8" CCD	SONY ICX274	1624 × 1228	4.40 × 4.4	27
VLG-22.I	•	•	2/3" CMOS	CMOSIS CMV2000	2040 × 1084	5.50 × 5.5	55
VLG-23.I ¹⁾	•	•	1/1.2" CMOS	SONY IMX174	1920 × 1212	5.86 × 5.86	50
VLG-40.I	•	•	1" CMOS	CMOSIS CMV4000	2040 × 2044	5.50 × 5.5	29

¹⁾ available beginning Q2/2015

Industrial camera design – for demanding inspection tasks.

Proven versatility.

TX cameras were among the first compact GigE camera series and they are still a benchmark for market standards today. Tens of thousands have been successfully utilized in most varied applications.

More than 100 camera models with CCD sensors offer what it takes to meet virtually every requirement: PoE models for reduced installation and maintenance, Multi I/O cameras for simplified process synchronization as well as water and dust proof IP 67 models.

TX series

- Up to 5 megapixel and 210 fps
- CCD sensors
- Multi-voltage supply ranging from 8 to 30 volt
- Matured electronics design for superior image quality

Sensor Dust Protection System
maximum protection
for the image sensor

Square housing
image center is main-
tained in each position



Reliable operation
opto-decoupled inputs and outputs
with automation voltage levels



Camera Type	Model Variants						Sensor Type	Sensor	Resolution ¹⁾ [px]	Pixel Size [μm]	Full Frames [fps]
	Mono	Color	NIR	IP 67	PoE	Multi I/O					
TXG02	•	•					1/4" CCD	SONY ICX618	656 × 494	5.6 × 5.6	140
TXG03 ²⁾	•	•		•	•	•	1/3" CCD	SONY ICX424	656 × 494	7.4 × 7.4	90
TXG04	•	•					1/2" CCD	SONY ICX414	656 × 494	9.9 × 9.9	56
TXG04 v2	•	•					1/2" CCD	SONY ICX414	656 × 494	9.9 × 9.9	93
TXG04h	•						1/3" CCD	Truesense KAI-0340	640 × 480	7.4 × 7.4	210
TXG06	•	•					1/2" CCD	SONY ICX415	776 × 582	8.3 × 8.3	64
TXG08 ²⁾	•	•		•	•		1/3" CCD	SONY ICX204	1032 × 776	4.65 × 4.65	28
TXG12	•	•					1/3" CCD	SONY ICX445	1296 × 966	3.75 × 3.75	32
TXG13 ²⁾	•	•		•	•	•	1/2" CCD	SONY ICX267	1392 × 1040	4.65 × 4.65	20
TXG14 ²⁾	•	•	•				2/3" CCD	SONY ICX285	1392 × 1040	6.45 × 6.45	20
TXG14f	•	•					2/3" CCD	SONY ICX285	1392 × 1040	6.45 × 6.45	30
TXG20 ²⁾	•	•		•	•	•	1/1.8" CCD	SONY ICX274	1624 × 1236	4.4 × 4.4	16
TXG50 ²⁾	•	•		•	•	•	2/3" CCD	SONY ICX625	2448 × 2050	3.45 × 3.45	15

¹⁾ Resolution with color models can have minimal variations. ²⁾ Model is also available with FireWire interface in monochrome and/or color (full frame rate differs).

Precise
inspection at
high throughput.

High-resolution CMOS cameras.

The LX series with high-resolution CMOSIS sensors and Dual GigE interface will master demanding inspection tasks with high requirements on fine-detailed image acquisition at high throughput. The innovative, standard-compliant Dual GigE interface with 240 MB/s bandwidth combines simplified integration with twice the frame rate.

The 8 and 12 megapixel models operate on the successful CMOSIS 5.5 μm pixel design, which allows existing systems an easy upgrade by LX cameras with excellent sensitivity and high frame rates. The 20 megapixel model utilizes a 6.4 μm pixel design. With even higher resolution and dynamic capabilities but yet low-noise this camera sets new benchmarks.

LX series

- Up to 20 megapixel and 29 fps
- CMOS sensors
- Outstanding sensitivity
- Single or Dual GigE with PoE

High Dynamic Range (HDR)
further enhanced Dynamic Range

Multi ROI and Multi I/O as well as PoE
for ultimate flexibility



Single or Dual GigE
with 240 MB/s
high frame rates and
easy integration

Modular lens mount
M58, M42, F-Mount
or C-Mount



Camera Type	Model Variants		Sensor Type	Sensor	Resolution [px]	Pixel Size [μm]	Full Frames [fps]	
	Mono	Color					Single GigE	Dual GigE
LXG-80	•	•	4/3"	CMOS CMOSIS CMV8000	3360 × 2496	5.5 × 5.5	14	29
LXG-120	•	•	APS-C	CMOS CMOSIS CMV12000	4096 × 3072	5.5 × 5.5	9	19
LXG-200	•	•	35mm	CMOS CMOSIS CMV20000	5120 × 3840	6.4 × 6.4	6	12

Capture the
essential at the
right moment.

Brilliant image quality.

Cameras of the PX series with USB 3.0 interface are based on state-of-the-art SONY quad-tap CCD sensors with EXview HAD CCD II™ technology merging brilliant image quality, resolutions up to 12 megapixel and high speed.

Outstanding sensitivity, dynamic properties and linearity in conjunction with USB 3.0 interface open up a wide application potential. The PX cameras master diffuse light conditions and meet the highest demands on image quality, for example in microscopy, measuring technology or traffic systems.

PX series

- Up to 12 megapixel and 50 fps
- Quad-tap CCD sensors
- Very high dynamic range up to 65 dB
- Excellent homogeneity

Sequencer and Multi I/O
for improved flexibility

SONY CCD sensors with
up to 12 MP resolution
brilliant image quality,
high frame rates and sensitivity



Precise installation
square housing with
3-point mount on all sides

Compact C-mount interface
wide selection of high-quality lenses



Camera Type	Model Variants			Sensor Type	Sensor	Resolution [px]	Pixel Size [μm]	Full Frames [fps]
	Mono	Color ¹⁾	Quad-tap					USB3 Vision™
PXU-28 ¹⁾	•	•	•	2/3" CCD	SONY ICX674	1936 × 1456	4.54 × 4.54	50
PXU-60	•	•	•	1" CCD	SONY ICX694	2752 × 2200	4.54 × 4.54	25
PXU-90 ¹⁾	•	•	•	1" CCD	SONY ICX814	3384 × 2704	3.69 × 3.69	18
PXU-120	•	•	•	1" CCD	SONY ICX834	4248 × 2832	3.1 × 3.1	15

¹⁾ available Q2/2015

Because every detail matters: high resolution and low noise.

Photometric precision.

The SX series stands for CCD cameras with excellent image quality and resolutions from 1 to 8 megapixel. With their Truesense sensors and accordingly aligned processing electronics, the series is characterized by excellent image homogeneity, outstanding linearity and photometric stability. The SX series is thus the ideal choice for demanding measurement tasks.

Thanks to double bandwidth, Dual GigE cameras provide the full frame rate even with a 12 bit resolution. Camera Link® Base models excel by minimum CPU load. Dynamic alignment of the quad tap sensors ensures an exceptional image quality.

Truesense CCD sensors up to 8 megapixel high resolution with excellent image quality

Multi I/O and PoE for more flexibility in system design



Dual GigE or Camera Link® for high frame rates

SX series

- Up to 8 megapixel and 120 fps
- CCD sensors
- Dynamic tap alignment technique
- Robust, industrial design



Camera Type	Modell Variants		Sensor Type		Sensor	Resolution [px]	Pixel Size [µm]	Full Frames [fps]	
	Mono	Color						Dual GigE	Camera Link®
SXG10 / SXC10	•	•	1/2"	CCD	Truesense KAI-01050	1024 × 1024	5.5 × 5.5	120	120
SXG20 / SXC20 / SXC20 v2	•	•	2/3"	CCD	Truesense KAI-02050	1600 × 1200	5.5 × 5.5	68	68
SXG21 / SXC21	•	•	2/3"	CCD	Truesense KAI-02150	1920 × 1080	5.5 × 5.5	64	64
SXG40 / SXC40	•	•	1"	CCD	Truesense KAI-04050	2336 × 1752	5.5 × 5.5	32	32
SXG80 / SXC80 / SXC80 v2	•	•	4/3"	CCD	Truesense KAI-08050	3296 × 2472	5.5 × 5.5	16	16

Highest frame rates
for increased
throughput.

High Speed CMOS cameras.

Based on top-of-the-line CMOS sensors, we developed the HX series especially for applications that put high demands on frame rate, resolution and sensitivity. All cameras feature FPN correction, HDR and a global shutter to ensure top image quality.

Dual GigE cameras will tackle any inspection task with all the benefits of GigE Vision® technology – with a frame rate that is even twice as high. For applications with even higher speed requirements you can rely on the Camera Link® Full models.

HX series

- Up to 4 megapixel and 500 fps
- CMOS sensors
- Excellent sensitivity
- HDR for a higher dynamic range

Multi ROI (Region of Interest)
maximum frame rate with
reduced amount of data

Fixed Pattern Noise
(FPN) Correction
for homogenous images



Burst Mode
to capture image sequences
with full sensor speed



Camera Type	Modell Variants			Sensor Type	Sensor	Resolution [px]	Pixel Size [µm]	Full Frames [fps]	
	Mono	Color	NIR					Dual GigE	Camera Link®
HXC13				1.4" CMOS	Cypress Lupa-1300-2	1280 × 1024	14 × 14	–	500
HXG20 / HXC20	•	•	•	2/3" CMOS	CMOSIS CMV2000	2048 × 1088	5.5 × 5.5	105	337
HXG40 / HXC40	•	•	•	1" CMOS	CMOSIS CMV4000	2048 × 2048	5.5 × 5.5	56	180

Software integration made easy.

Besides the right camera, the matching software for evaluation and integration is essential in a powerful image processing system. For any of our cameras you can draw upon the Baumer GAPI software development kit (SDK) or on third party software.

Convenient implementation: The Baumer GAPI.

The Baumer GAPI is the generic application programming interface (API) for easy camera integration into user-specific Windows® or Linux software environment. Drivers with low CPU load, particularly optimized to comply with the established interface standards, numerous example programs and documentation support the integration process.



Software Download
Baumer GAPI SDK
www.baumer.com/GAPI-SDK

High-performance SDK
for efficient image capturing

Single-source support
in both camera and software

Camera test tool
Camera Explorer



Operating systems
Windows® and Linux

Future-oriented integration
by standard compliance

Just one click to the first image: The Baumer Camera Explorer.

As from software version 2, the new Camera Explorer for quick camera evaluation becomes available. Also acting as an intuitive test tool, it supplies the first image with just one click. All camera parameters are configurable for image display in real-time sequence or as a recording. Extended functionalities furthermore simplify deployment in visualization tasks.

Baumer GAPI		v1.7	v2.x
Interfaces	GigE Vision® (Single / Dual GigE)	•	•
	USB3 Vision™	–	•
	Camera Link®	•	–
	FireWire	•	–
Operating systems	Windows® XP 7 8	• • –	• ¹⁾ • •
	Linux (Debian / Ubuntu / Fedora / OpenSuse)	–	• ¹⁾
Programming languages and compatibility	C C++ C#	• • •	– • •

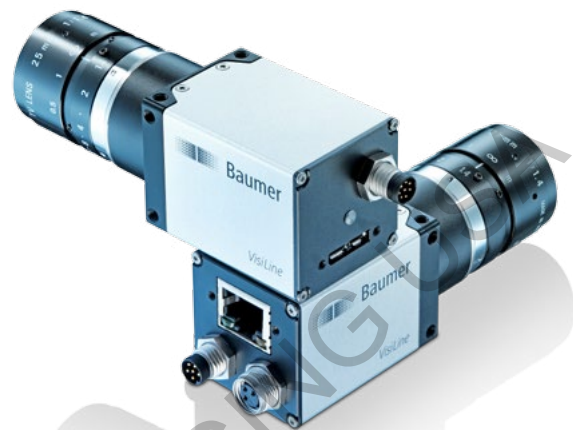
¹⁾ GigE Vision® support

Flexibility by compatibility.

Every task in image processing is unique and imposes individual requirements on both camera and related machine vision software. We meet them all.

Flexibility by standard compliance.

Hassle-free compatibility of GenICam™, the Baumer GAPI generic application programming interface, together with standard-optimized drivers for GigE Vision®, USB3 Vision™, Camera Link® and DCAM, simplify camera integration and allow for drop-in replacement across all series.



GEN*<i>i>*CAM

Third Party Software Support.

Full compliance to all relevant standards in camera engineering and development, regular compatibility tests and the close cooperation with our software partners give you the freedom to implement user-specific third party software and ensure trouble-free integration of our cameras in any of your application tasks.

Amongst others Baumer supports third party software of the following vendors:



MICROSCAN



Ideally connected.

Our in-house developed network components are optimally harmonized and particularly conceived for industrial image processing. They complete your image processing system in an ideal way. Based on PoE standard they simplify power supply of the GigE Vision® cameras and reduce cabling effort.

The cameras support data rates up to 1000 Mbit/s. Copper cables allow for a maximum length of 100 m. SFP modules and fiber-optic cable allow for an even more extended range. Supporting jumbo frames cuts down on CPU load and processing effort. Selected models provide 24 V supply and eliminate the need for an additional power unit. DIN rails provide convenient mounting capabilities.

Network components

- Simplifies the design of multi-camera systems
- Power supply via PoE
- Supporting jumbo frames
- Robust, industrial design



Components	Connections	Jumbo Frames [kByte]	DC Supply [V]	PoE	Performance per output [W]	Dimensions [mm]
GigE Power Injector	4x 8P8C (RJ-45)	–	48	•	15.4	22.5 × 99 × 113.5
GigE Switch	4x 8P8C (RJ-45)	up to 10	12 ... 24	–	–	22.5 × 99 × 113.5
GigE Power Switch (4 port)	4x 8P8C (RJ-45)	up to 10	48	•	15.4	22.5 × 99 × 113.5
GigE Power Switch Extended (6 port)	5x 8P8C (RJ-45) 1x SFP-Modul	up to 10	48	•	15.4	45 × 99 × 113.5
GigE Power Switch Plus (6 port)	5x 8P8C (RJ-45) 1x SFP-Modul	up to 9	12 ... 36	•	30	41 × 94.9 × 144.3

Making it all easy.

We provide you with everything you need to integrate our cameras quickly and easily into your system: From proper accessories on to individual starter kits, you will obtain all that's necessary.

Matching accessories for your system.

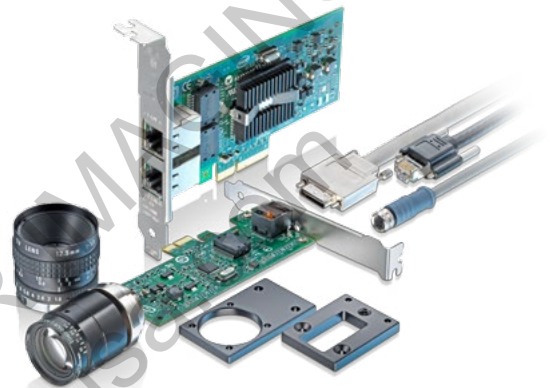
There is more to an image processing system than just a camera: cables, PCI interface cards, filters, adapters and mountings or lenses. We help you to find the accessories that match your application and provide you with a comprehensive range of cross-interface accessories that are optimally harmonized. Since the system is only as reliable as its individual components, you can be sure our components underwent comprehensive testing and inspection – for long-term longevity and reliability in the image processing application.

Starter Kits: Just unpack and go.

Our starter kits are individually compiled to match the related camera series and will support you in evaluating a camera. You can focus entirely on the solution while we provide you with everything required for set up – from cable to mountings on to software.



Your Starter Kit
Request today your individual starter kit:
www.baumer.com/vision/starterkits



Lenses and filters
matching every application

Mountings
stable system assembly

Interface cards
reliable PC connection

Cables
approved quality for improved safety

Baumer GAPI
powerful, efficient SDK

Third Party Software



Lighting

Industrial cameras
high-performance camera portfolio



More than just a camera: From idea to implementation.

When conceiving a new image processing system, our customers focus on the whole. For this reason we attach great importance to continuous improvement of the entire value-added process in order to support you in cutting down on costs and improving efficiency.



Right from the beginning, we are with you every step of the way. Our experienced engineers and technicians provide on-side support when it comes to evaluating the appropriate camera and matching accessories. In close cooperation with you we elaborate on customized components where standard products meet their limits.

Our cameras enable cross-industry deployment in most varied applications. Our individual starter kits and the Camera Explorer in our Baumer GAPI software development kit allow you convenient testing of our products already in the evaluating stage. This way, you can be sure to always get the components optimally matching your system.

Easy and time-saving camera integration. Our Technical and Application Support Center will help you in implementing the camera in your application. Comprehensive compatibility tests of several system components and compliance to all relevant standards ensure perfectly reliable system integration, whereas camera integration is aided by our SDK Baumer GAPI or third party software.

The robust design of our industrial cameras is essential in long-term stable image processing. We are EN ISO 9001 certified and by compliance to EMVA 1288 our cameras achieve top results in supplier audits. Every camera is subject to strict controls and comprehensive electric and optical inspection. Development, production and support all merged in one single location – for best results.

Rely on us and on our cameras throughout the years: 37 locations in 19 countries ensure long-term availability of our products and short reaction channels. Our products are backed by first-class service throughout their entire service life – in general, the experienced experts of our international technical support will answer your questions within 48 hours.

Machine vision competence at a glance.



High-performance
digital industrial cameras



Intuitive
vision sensors



Customer-specific
hardware and software design

Worldwide presence.



Africa

Algeria
Cameroon
Côte d'Ivoire
Egypt
Morocco
Reunion
South Africa

America

Brazil
Canada
Colombia
Mexico
United States
Venezuela

Asia

Bahrain
China
India
Indonesia
Israel
Japan
Kuwait
Malaysia
Oman
Philippines
Qatar
Saudi Arabia
Singapore
South Korea
Taiwan
Thailand
UAE

Europe

Austria
Belgium
Bulgaria
Croatia
Czech Republic
Denmark
Finland
France
Germany
Greece
Hungary
Italy
Malta
Martinique
Netherlands
Norway
Poland
Portugal
Romania
Russia
Serbia
Slovakia
Slovenia
Spain
Sweden
Switzerland
Turkey
United Kingdom

Oceania

Australia
New Zealand



For more information
about our worldwide
locations go to:
www.baumer.com/worldwide



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