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.
Baumer is a global leader in sensor solutions for factory and process automation. More than 2,700 employees in 39 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 20 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, customized 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.

Featuring industrial designs, cutting-edge sensors, and clever solutions, our cameras provide the basis for precise and long-term stable image evaluation to allow you to successfully complete your inspection tasks.

The large selection of different cameras offers the right model for each industry and application. From cost-effective entry-level models to perfectly optimized standard cameras up to high-performance industrial cameras with maximum performance for the highest demands.
Reliable camera solutions for cross-industry applications.
CX series

Latest global and rolling shutter CMOS cameras for the detection and evaluation of fast processes.

With the high-performance CX cameras you can rely on the most current Sony® Pregius™ and STARVIS® CMOS sensor generations as well as ON Semiconductor® PYTHON, for the future-ready implementation of your applications.

In addition to many standard versions with an extensive range of functions, we offer you camera models with Precision Time Protocol (PTP) for precise time synchronization in Ethernet networks, with polarization sensor for the complete detection of the linear polarization state of surfaces, as well as global shutter, rolling shutter, or global reset shutter. Thanks to this great variety, you will be sure to find the right camera for each of your applications.

Technical highlights

- Exposure times from 1 µs
- Opto-decoupled inputs and outputs with automation voltage levels
- Burst Mode and integrated image memory for cost-sensitive applications
- GigE power supply: external 12 – 24 V or PoE

Your benefits

- Extensive scope of application thanks to a large variety of the latest CMOS sensor models
- With 1000 frames/s in Burst Mode and ROI you can reliably capture fast applications
- Up to 20 megapixel in a compact 29 × 29 mm housing, easily and flexibly integrated in tight installation settings
- Flexible application potential with temperature range from 0 °C to 65 °C
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</table>

**GigE Vision®**

- 29 × 29 × 38 mm
- Burst Mode (image acquisition in the camera’s internal memory)
- Rolling shutter
- Polarization

**USB3 Vision™**

- 29 × 29 × 38 mm
- Precision Time Protocol IEEE 1588
- Rolling shutter and global reset shutter

*GigE Vision®*: Burst Mode (image acquisition in the camera’s internal memory) | Interface
CX.I cameras

Extra power for added performance in demanding applications.

Thanks to their clever design and practical functional properties, the robust CX.I cameras offer extra power for your applications – a high operating temperature range, vibration and shock resistance, hard-anodized housings, as well as 4 power outputs with integrated lighting controller for the easy and cost-effective control of external lightings.

Technical highlights
- Hard-anodized surface
- X-coded M12 connector and PoE
- Vibration 10 g and shock 100 g
- 4 power outputs with max. 120 W (max. 48 V / 2.5 A)

<table>
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<tr>
<th>Model</th>
<th>Mono</th>
<th>Color</th>
<th>Sensor Type</th>
<th>Sensor</th>
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<td>4096 × 3000</td>
<td>3.45 × 3.45</td>
<td>15</td>
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Your benefits
- The need for cooling and heating measures is reduced thanks to the operating temperature range of -40 °C to 70 °C
- Integrated lighting controller with brightness control reduces system costs
- Varied accessories offer flexible solutions for individual applications in the food, beverage, and pharmaceutical industry
CX.I cameras
housing accessories

Tough and robust – flexible protection for reliable inspections in rough environments.

Thanks to their specifically developed housing accessories, the CX.I cameras can be quickly turned into highly robust cameras with the protection class IP 54/65/67 or IP 69K for sensitive areas in the automation sector, as well as in the food, beverage, and pharmaceutical industry.

The flexible design offers the right version for any application area, with an optimal price/performance ratio and surfaces that resist intensive cleaning, do not give dirt traps a chance, and minimize the adhesion of product residues.

Technical highlights

- Round hard-anodized housing prevents dirt traps
- Stainless steel housing with a washdown design for splash and product contact zones
- Patented modular tube system flexibly protects lenses with different lengths

<table>
<thead>
<tr>
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<th>Thread tube</th>
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<td>–</td>
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Chemically strengthened alumino-silicate glass SCHOTT Xensation® with high scratch, impact and fracture resistance for demanding applications

Your benefits

- Specially developed housing components with an optimal price/performance ratio for the automation, food, beverage, and pharmaceutical industry
- Long-term stable image acquisition thanks to the optimal thermal harmonization of camera and housing
- Developed in accordance with EHEDG guidelines for maximum reliability in hygienic areas
LX series

High-resolution, fast cameras for precise inspections with a high production throughput.

The cameras of the LX series are the ideal basis for demanding inspection tasks with high requirements, both on the precision of image acquisition and the throughput. With excellent image quality, outstanding sensitivity, low dark noise, and a large dynamic range, they reliably capture high-speed processes.

Technical highlights
- Burst Mode and integrated image memory
- Multi ROI and Multi I/O, as well as PoE/PoCL
- Lens mount for M58, M42, F-mount, C-mount
- Models with 3D laser triangulation and JPEG image compression

<table>
<thead>
<tr>
<th>Model</th>
<th>Mono</th>
<th>Color</th>
<th>Sensor Type</th>
<th>Sensor</th>
<th>Resolution [px]</th>
<th>Pixel Size [µm]</th>
<th>Full Frames [fps]</th>
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* GigE Vision®: Burst Mode (image acquisition in the camera’s internal memory) | interface

Your benefits
- With a resolution of up to 48 megapixel, the finest details are reliably detected even in high-speed applications
- Outstanding sensitivity and excellent image quality allow precise, long-term stable evaluations
- Data amount and system costs are reduced by the fast and precise 3D laser triangulation as well as JPEG image compression
LXT cameras

Robust 10 GigE cameras for fast image transfer and easy integration.

The LXT cameras combine a high bandwidth of 1.1 GB/s with an easy and cost-effective integration with long cable lengths for copper and even up to 10 km for fiber optic cables – without the need for frame grabbers or media converters. In addition, they are equipped with liquid lens support, 4 power outputs and high-performance features such as sequencer, Burst Mode, and the Precision Time Protocol IEEE 1588, which all support solutions for individual applications.

Technical highlights

- 10GBase-T for copper cables or SFP+ slot for optical cables
- 4 power outputs with max. 120 W (max. 48 V / 2.5 A)
- Prepared for IP 65/67 protection with optional patented modular tube system
- Liquid lens support, RS232
- Exposure times from 1 µs

Your benefits

- Recognition of finest details in high-speed applications thanks to the excellent image quality with low noise and a dynamic range of more than 82 dB (HDR)
- 10 GigE Vision® for continuously fast image transfer at 1.1 GB/s and easy integration without special frame grabbers
- Bridging of large distances up to 10 km thanks to fiber-optic cables
- Liquid lens support and 4 power outputs for efficient applications
QX series

High-speed cameras with 8 GB internal memory for recording short image sequences.

The QX cameras are the optimal choice for applications that have to capture short image sequences fast and with a high resolution of 12 megapixel. This allows you to better understand and analyze your processes.

Thanks to the 8 GB internal image memory, 2 seconds can be recorded at 335 frames/s and 12 megapixel resolution. With a ROI (region of interest) of 1 megapixel, the high-performance 10 GigE interface supports continuous transfer with 1000 frames/s.

Technical highlights

- 8 GB internal image memory with dynamic memory management
- Record of up to 4 seconds
- Extensive bandwidth of 1.1 GB/s via 10 GigE Vision®

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<th>Full Frames [fps]</th>
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</table>

* image acquisition in the camera's internal memory | interface (10 GigE)

Your benefits

- Recording of short image sequences of high-speed processes with a high precision of 12 megapixel and 335 frames/s
- Flexible adjustment of the recording duration thanks to the 8 GB image memory with dynamic memory management
- Cost-effective integration and short transmission and response times thanks to the 10 GigE interface
EX series

Focus on the essential: small, high-performance cameras with high Baumer quality at a low price.

Their focus on the essential, standard-compliant basic functionalities make the EX cameras ideally suited for many cost-sensitive standard machine vision applications. In combination with the CS mount, this allows you to lower your system costs in every aspect.

Technical highlights
- Robust 29 × 29 mm metal housing
- M3 mounts at each side
- 4-pin M8 connector
- GigE power supply: external 12 – 24 V

<table>
<thead>
<tr>
<th>Model</th>
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<td>M</td>
<td>C</td>
<td>2/3” CMOS</td>
<td>PYTHON2000</td>
<td>1920 × 1200</td>
<td>4.8 × 4.8</td>
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<tr>
<td>VEXG-52.R</td>
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<td>C</td>
<td>1/2.5” CMOS</td>
<td>MT9P031</td>
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<tr>
<td>VEXG-100.R</td>
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<td>C</td>
<td>1/2.3” CMOS</td>
<td>MT9J003</td>
<td>3856 × 2764</td>
<td>1.67 × 1.67</td>
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<table>
<thead>
<tr>
<th>Model</th>
<th>Mono</th>
<th>Color</th>
<th>Sensor Type</th>
<th>Sensor</th>
<th>Resolution [px]</th>
<th>Pixel Size [µm]</th>
<th>Full frames [fps]</th>
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</thead>
<tbody>
<tr>
<td>VEXU-24</td>
<td>M</td>
<td>C</td>
<td>1/1.2” CMOS</td>
<td>IMX249</td>
<td>1920 × 1200</td>
<td>5.86 × 5.86</td>
<td>38</td>
</tr>
</tbody>
</table>

Your benefits
- Latest CMOS sensors for future-proof image processing applications
- CS-mount allows the use of cost-effective lenses for lower system costs
- Precise image analysis thanks to the industrial design up to 65 °C
Customer-specific products for your applications.

When standard cameras reach their limits, we can develop customized image processing components for your applications — starting with the simple adaptation of our industrial cameras, through the complete development of an OEM product, to modifications of our software.

Your benefits

- Our know-how: you gain competitive advantage and save time
- Our practice-proven technologies: reliable solutions and investment security
- Our best price-performance ratio: cost reduction and profitability improvement

Made to match: modification of standard cameras.

Perfectly tailored to your application, we can modify our cameras and thus create the right component for your system. This covers:

- Modification of hardware (e.g. adjustment of mechanical and electrical interfaces)
- Firmware adaptation (e.g. image preprocessing)
- Branding and labeling (e.g. application of trademarks)

Tailor-made for you: OEM development.

To meet your requirements, we develop OEM components with an optimum price-performance ratio. Our range of services covers:

- Development and production of image processing components
- Complete design of mechanical systems, hardware and software
- Long-term availability

Individually adapted: software & algorithms.

We can offer you different software solutions for optimum system performance, namely:

- Camera integration and image preprocessing with the Baumer GAPI SDK for Windows®, Linux® and Linux® ARM®
- FPGA-based image processing for image enhancement or data reduction in real time
- DSP-/x86-/ARM®-based image processing algorithms
Precisely implemented embedded vision.

For the realization of your embedded vision application, we can offer you a large product portfolio and customer-specific products with long-term availability. In addition, the experienced staff at our Baumer Solution Center can support you with competent advice and feasibility analyses.

Your individual application – our versatile range of products.

- **High flexibility in small spaces:**
  Flexible integration (MX series), for example in applications in medical technology, laboratory automation or in the retail trade

- **Large camera portfolio for many industries:**
  Compact cameras (CX and LX series) with optional IP 65/67 protection class for applications in mechanical engineering, in the electronics industry, for traffic monitoring, or in microscopy

- **Real-time behavior without additional system components:**
  FPGA-based real-time image processing (LX VisualApplets cameras) for image enhancement or data reduction, for example in the pharmaceutical, beverages or packaging industry

- **Powerful algorithms can be used flexibly on the latest processors:**
  Patented Baumer FEX® image processor and powerful DSP-/ARM®-based algorithms in VeriSens® vision sensors

- **Quickly and easily integrated:**
  Standard-compliant interfaces, protocols (e.g. real-time Ethernet) and flexible software integration under Windows®, Linux® or Linux® ARM® (Baumer GAPI SDK) together with our accessories and starter kits

---

**Your benefits**

- Optimum price-performance ratio for series-type applications
- Long-term availability of customer-specific image processing components
- Support from the Baumer Solution Center
- Easy global procurement and competent support thanks to worldwide presence of Baumer
Intelligent
software integration.

The Baumer GAPI and Camera Link® SDK offer you powerful software development kits (SDK) with a generic application programming interface (API) for the easy, quick, and platform-independent integration of our cameras into your application and software environment.

<table>
<thead>
<tr>
<th>Interfaces</th>
<th>GAPI SDK v2.x</th>
<th>Camera Link® SDK</th>
</tr>
</thead>
<tbody>
<tr>
<td>GigE / 10 GigE / Dual GigE</td>
<td>✔</td>
<td>–</td>
</tr>
<tr>
<td>USB 3.0</td>
<td>✔</td>
<td>–</td>
</tr>
<tr>
<td>Camera Link®</td>
<td>–</td>
<td>✔</td>
</tr>
<tr>
<td>Hardware platforms</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Operating systems</td>
<td>Windows® 7</td>
<td>✔</td>
</tr>
<tr>
<td>Linux® (Debian®, Ubuntu®, Fedora®, openSUSE®)</td>
<td>✔</td>
<td>–</td>
</tr>
<tr>
<td>Programming languages</td>
<td>C++</td>
<td>✔</td>
</tr>
</tbody>
</table>

1 For LX cameras with Camera Link®. Other Baumer cameras with Camera Link® run with GAPI SDK v1.7.1.

Baumer GAPI SDK.

Fully supporting GenICam™ and GenTL, the Baumer GAPI SDK ensures flexible and easy camera integration. Numerous programming examples and documentations as well as varied options for testing and visualization of the Camera Explorer ease integration even further.

For embedded vision applications with Linux® ARM®-based systems, the SDK features several standard and basic packages to utilize the manufacturer evaluation kit’s respectively own software designs.

Baumer Camera Link® SDK.

The Camera Link® cameras of the LX series feature GenCP (Generic Control Protocol) for convenient and quick configuration. Increasingly supported by frame grabber manufacturers, the need for an additional SDK will be eliminated. Alternatively, the Baumer Camera Link® SDK may also be used for evaluation and integration. It includes a configuration tool to setup and test all camera functions and to use extended features such as events. The camera can be conveniently integrated into your software environment based on GenICam™ reference implementation.
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™ and Camera Link® simplify camera integration and allow for drop-in replacement across all series.

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.

Third-party software:

1. The list informs you which third party software is compatible with Baumer industrial cameras. The list neither claims to be complete nor includes any recommendation for a specific provider.
2. Software support of individual models may be provider-specific and is recommended for corresponding validation.
Making it all easy.

We provide you with everything you need to integrate our cameras quickly and easily into your systems: From proper network components and accessories up to individual Starter Kits, you will have everything 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 find the accessories that match your application and provide you with a comprehensive range of cross-interface accessories that are optimally harmonized. Since a system is only as reliable as its individual components, you can be sure our components have undergone 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 your individual Starter Kit today:
www.baumer.com/vision/StarterKits
Proven cameras with long-term availability.

Baumer produces all industrial cameras in-house – giving you top product quality and maximum supply reliability. We thus also ensure the long-term availability of our proven camera series, which are deployed all around the world in countless applications. Rely on us – for years to come!

<table>
<thead>
<tr>
<th>VisiLine® series</th>
<th>Model</th>
<th>Color</th>
<th>Sensor Type</th>
<th>Sensor</th>
<th>Resolution [px]</th>
<th>Pixel Size [µm]</th>
<th>Full Frames [fps]</th>
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<tbody>
<tr>
<td>GigE Vision®</td>
<td>VLG-22</td>
<td>M</td>
<td>C</td>
<td>2/3&quot;CMOS</td>
<td>CMV2000</td>
<td>2040 × 1084</td>
<td>5.5 × 5.5</td>
</tr>
<tr>
<td></td>
<td>VLG-23</td>
<td>M</td>
<td>C</td>
<td>1/1.2&quot;CMOS IMX174</td>
<td>1920 × 1200</td>
<td>5.86 × 5.86</td>
<td>53</td>
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<tr>
<td></td>
<td>VLG-24</td>
<td>M</td>
<td>C</td>
<td>1/1.2&quot;CMOS IMX249</td>
<td>1920 × 1200</td>
<td>5.86 × 5.86</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>VLG-40</td>
<td>M</td>
<td>C</td>
<td>1&quot;CMOS CMV4000</td>
<td>2040 × 2044</td>
<td>5.5 × 5.5</td>
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</tr>
<tr>
<td>IP 65/67 cameras</td>
<td>VLG-22.I</td>
<td>M</td>
<td>C</td>
<td>2/3&quot;CMOS</td>
<td>CMV2000</td>
<td>2040 × 1084</td>
<td>5.5 × 5.5</td>
</tr>
<tr>
<td></td>
<td>VLG-23.I</td>
<td>M</td>
<td>C</td>
<td>1/1.2&quot;CMOS IMX174</td>
<td>1920 × 1200</td>
<td>5.86 × 5.86</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>VLG-40.I</td>
<td>M</td>
<td>C</td>
<td>1&quot;CMOS CMV4000</td>
<td>2040 × 2044</td>
<td>5.5 × 5.5</td>
<td>29</td>
</tr>
<tr>
<td>MX-Serie</td>
<td>MXGC03</td>
<td>M</td>
<td>C</td>
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<td></td>
<td>MXGC20</td>
<td>M</td>
<td>C</td>
<td>2/3&quot;CMOS</td>
<td>CMV2000</td>
<td>2040 × 1084</td>
<td>5.5 × 5.5</td>
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<tr>
<td></td>
<td>MXGC40</td>
<td>M</td>
<td>C</td>
<td>1&quot;CMOS CMV4000</td>
<td>2040 × 2044</td>
<td>5.5 × 5.5</td>
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<tr>
<td>HX series</td>
<td>HXG20</td>
<td>M</td>
<td>C</td>
<td>2/3&quot;CMOS</td>
<td>CMV2000</td>
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<td>5.5 × 5.5</td>
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<tr>
<td></td>
<td>HXG40</td>
<td>M</td>
<td>C</td>
<td>1&quot;CMOS CMV4000</td>
<td>2048 × 1088</td>
<td>5.5 × 5.5</td>
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<tr>
<td>Near Infrared Range</td>
<td>HXG20NIR</td>
<td>M</td>
<td>–</td>
<td>2/3&quot;CMOS</td>
<td>CMV2000</td>
<td>2048 × 1088</td>
<td>5.5 × 5.5</td>
</tr>
<tr>
<td></td>
<td>HXG40NIR</td>
<td>M</td>
<td>–</td>
<td>1&quot;CMOS CMV4000</td>
<td>2048 × 1088</td>
<td>5.5 × 5.5</td>
<td>180</td>
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<tr>
<td>Camera Link®</td>
<td>HXC20</td>
<td>M</td>
<td>C</td>
<td>2/3&quot;CMOS</td>
<td>CMV2000</td>
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<td>5.5 × 5.5</td>
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<tr>
<td></td>
<td>HXC40</td>
<td>M</td>
<td>C</td>
<td>1&quot;CMOS CMV4000</td>
<td>2048 × 1088</td>
<td>5.5 × 5.5</td>
<td>180</td>
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<tr>
<td>Near Infrared Range</td>
<td>HXC20NIR</td>
<td>M</td>
<td>–</td>
<td>2/3&quot;CMOS</td>
<td>CMV2000</td>
<td>2048 × 1088</td>
<td>5.5 × 5.5</td>
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<tr>
<td></td>
<td>HXC40NIR</td>
<td>M</td>
<td>–</td>
<td>1&quot;CMOS CMV4000</td>
<td>2048 × 1088</td>
<td>5.5 × 5.5</td>
<td>180</td>
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<tr>
<td>LX VisualApplets cameras</td>
<td>LXG-20.P</td>
<td>–</td>
<td>C</td>
<td>2/3&quot; CMOS</td>
<td>CMV2000</td>
<td>2048 × 1088</td>
<td>5.5 × 5.5</td>
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<td></td>
<td>LXG-20.PS</td>
<td>M</td>
<td>–</td>
<td>2/3&quot; CMOS</td>
<td>CMV2000</td>
<td>2048 × 1088</td>
<td>5.5 × 5.5</td>
</tr>
<tr>
<td></td>
<td>LXG-40.P</td>
<td>M</td>
<td>–</td>
<td>1&quot; CMOS</td>
<td>CMV4000</td>
<td>2048 × 2048</td>
<td>5.5 × 5.5</td>
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<td>APS-C CMOS</td>
<td>CMV12000</td>
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<tr>
<td></td>
<td>LXG-120.PS</td>
<td>M</td>
<td>–</td>
<td>APS-C CMOS</td>
<td>CMV12000</td>
<td>4096 × 3072</td>
<td>5.5 × 5.5</td>
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<tr>
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<td>LXG-200.P</td>
<td>M</td>
<td>–</td>
<td>35 mm CMOS</td>
<td>CMV20000</td>
<td>5120 × 3840</td>
<td>6.4 × 6.4</td>
</tr>
</tbody>
</table>

1) Burst Mode (image acquisition in the camera’s internal memory) | interface  2) Image acquisition and evaluation with VisualApplets | interface
Worldwide presence.

Africa
- Algeria
- Cameroon
- Côte d'Ivoire
- Egypt
- Morocco
- Réunion
- 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

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