



Baumer Industrial Cameras

Versatility through Innovation

Digital Cameras

Versatility through Innovation

One camera for every taste. Like a chef's signature dish, the right combination of ingredients makes the difference. Discover the excitement of the many "flavors" of the industrial cameras from Baumer.



TX Camera Family

The digital cameras of the Baumer TX family stand for versatility through innovation and convince with their compact housing and the conformity to industrial standards such as Gigabit Ethernet and FireWire™. State-of-the-art sensor technology combined with Baumer's own components and know-how guarantees perfect image quality from the sensor to the interface and further. Depending on your application, monochrome and color sensors with up to 5 megapixel are available.



Innovative developments such as industrial protection with dust proof and water proof IP67 cameras or Gigabit Ethernet with fewer wires to manage using advanced Power over Ethernet (PoE) technology are only two of the special features provided by the TX family.

Simple software integration of the TX camera family into your application is provided by the generic programming interface, called Baumer-GAPI, which was specifically developed for these cameras. Our Software Development Kit contains all the necessary libraries, drivers and help files to integrate any Baumer camera easily into your individual user program. Of course, the cameras are supported by a variety of established standard image processing solutions, even without the Baumer-GAPI.

Consistent customer focus means more to us. We offer a convenient Starter Kit for Baumer Gigabit Ethernet cameras that allows you to quickly and easily test the camera for your application. Besides the desired camera, the package contains all necessary cables and components for an initial set-up.



Gigabit Ethernet

Gigabit Ethernet enables completely New Applications

Part of the TX camera family, the GigE Vision® compliant TXG series uses a standardized Gigabit Ethernet interface for communication, enabling industrial applications of image processing not possible with other camera interfaces. Data transfer of 1 Gbit/sec over cable lengths of 100 m substantially exceeds previous limits. Replacing expensive frame grabbers with standard Ethernet components can improve performance while reducing costs. With the increased networking capability, a customized user solution can be scaled precisely to your requirements. Whether it is multi-camera operation or integration in different network services – Baumer Gigabit Ethernet cameras permit innumerable network configurations.



The Baumer-GAPI is a generic application programming interface that ensures simple camera integration. Alternatively, any compatible image processing software may also be used. All camera functions are listed in a GenICam™ compliant XML file allowing the software to configure itself using the information contained in the file.



Advanced GigE Features

The command trigger is a trigger signal that is broadcast to the network. In comparison to a simple software trigger, the command trigger is able to address many cameras at the same time.

The trigger delay is a flexible user-defined delay between the incoming trigger signal and the image capture. The delay time can be set in increments of 1 µsec between 0 and 2 sec in duration. In case of multiple trigger signals during the delay, these triggers will be stored and delayed. The buffer is able to store up to 512 trigger signals during the delay.

The debouncer enables you to avoid interfering signals by setting a default trigger length between 0 and 5 msec in 1 µsec increments. The trigger will be valid if the length equals at least the set default trigger length.

The sequencer allows you to store in the camera up to 256 set of parameters like gain and exposure time. After the sequencer is activated, the camera captures images step by step corresponding to the given values in the memory.

Command Trigger

Trigger Delay

Debouncer

Sequencer



Baumer Starter Kit – Just unwrap and go...

Evaluating a camera should be as simple as snapping your fingers. With the Baumer Starter Kit we eliminate the time and frustration of searching for the right components to integrate the TXG camera into your application. Pick the camera of your choice, and Baumer

provides you an all-in-one package for effortless integration into your application, quickly and easily. Our software was developed for easy integration and is specially tailored to the requirements of TX cameras.



The Starter Kit contains

- Baumer Gigabit Ethernet camera of your choice
- Baumer-GAPI SDK for Gigabit Ethernet, Windows
- Gigabit Ethernet PCIe interface board
- Gigabit Ethernet cable 3.0 m
- Trigger and flash cable 5.0 m
- Power supply with 3.5 m cable
- Front mounting adapter, tripod mounting adapter

The Versatility of our GigE Cameras

Camera model	CCD sensor format	Sensor	Resolution [Pixel]	Pixel size [µm]	Full frames [max. fps]
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Monochrome

TXG03	1/3"	SONY ICX424	656 x 494	7.4 x 7.4	90
TXG04	1/2"	SONY ICX414	656 x 494	9.9 x 9.9	56
TXG04h	1/3"	Kodak KAI-0340	640 x 480	7.4 x 7.4	210
TXG06	1/2"	SONY ICX415	776 x 582	8.3 x 8.3	64
TXG08	1/3"	SONY ICX204	1032 x 776	4.65 x 4.65	28
TXG13	1/2"	SONY ICX267	1392 x 1040	4.65 x 4.65	20
TXG14	2/3"	SONY ICX285	1392 x 1040	6.45 x 6.45	20
TXG14f	2/3"	SONY ICX285	1392 x 1040	6.45 x 6.45	30
TXG20	1/1.8"	SONY ICX274	1624 x 1236	4.4 x 4.4	16
TXG50	2/3"	SONY ICX625	2448 x 2050	3.45 x 3.45	15

Color

TXG03c	1/3"	SONY ICX424	656 x 490	7.4 x 7.4	90
TXG04c	1/2"	SONY ICX414	656 x 490	9.9 x 9.9	56
TXG06c	1/2"	SONY ICX415	776 x 578	8.3 x 8.3	64
TXG08c	1/3"	SONY ICX204	1028 x 772	4.65 x 4.65	28
TXG13c	1/2"	SONY ICX267	1384 x 1036	4.65 x 4.65	20
TXG14c	2/3"	SONY ICX285	1384 x 1036	6.45 x 6.45	20
TXG14cf	2/3"	SONY ICX285	1384 x 1036	6.45 x 6.45	30
TXG20c	1/1.8"	SONY ICX274	1624 x 1232	4.4 x 4.4	16
TXG50c	2/3"	SONY ICX625	2448 x 2050	3.45 x 3.45	15

Technical Data of the TX Cameras

Excellent Cameras with Outstanding Specifications

Besides the flexibility of the interface types, the cameras of the TX family stand out in particular because of their advanced sensor technology. The compact size combined with many smart features makes these cameras the perfect solution for both simple and sophisticated vision applications.



12 bit Signal Processing

A precise 12 bit signal processing system guarantees the highest level of image quality. Low noise and unstructured image information ensure reproducible image acquisition even under the most difficult conditions.

Gain, Offset and Exposure Time

All TX cameras are equipped with standard features like gain, offset and exposure time in order to capture high-quality images under different conditions.

36 mm x 36 mm

With a housing design measuring 36 x 36 x 48 mm (TX standard) and 36 x 36 x 58 mm (PoE), these compact cameras can be integrated into even the smallest spaces.

True Partial Scan

The "True Partial Scan" mode of operation allows you to increase the frame rate by selecting specific regions of interest (ROI) from the sensor pixels.

Binning

Furthermore, the "Binning" function allows you to increase the sensitivity while simultaneously increasing the frame rate.

Trigger and Flash Interface

Exact synchronization of the camera to the process being monitored is provided by an industry-compliant trigger and flash interface found on the camera housing.

32 MByte Internal Memory

32 MByte of image data memory ensures that, even with multi-camera solutions, all image data are transferred reliably at the highest speed.

Fast Mode

The "Fast Mode" is an image format mode for each camera which increases the frame rate of the sensor.

Power over Gigabit Ethernet



Simplicity with PoE

Baumer makes industrial vision applications our specialty and introduces a new series of cameras specially designed to provide the first single-cable solution for Gigabit Ethernet. These cameras use Power over Ethernet (PoE) technology to simplify the mechanical design and to increase reliability of a vision system while simultaneously reducing the cost of installation and maintenance. These advantages, combined with the GigE cable length of up to 100 m, enable new and exciting approaches to solving professional vision applications.

Reduced Installation and Maintenance Costs

The economics or return on investment of industrial image processing systems are very sensitive to installation and maintenance costs. Compared with the typical Gigabit Ethernet cameras, the new PoE cameras use less cabling, thereby improving the mechanical design, increasing the reliability and reducing the weight of a vision system. To take full advantage of PoE technology, Baumer offers the most advanced, specially engineered PoE network components, providing our customers a single source solution. Bottom line, using Baumer PoE technologies simplifies your set-up and saves you money.



For Every Task, the Right PoE Camera

Camera model	CCD sensor format	Sensor	Resolution [Pixel]	Pixel size [µm]	Full frames [max. fps]
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Monochrome

TXG03-P	1/3"	SONY ICX424	656 x 494	7.4 x 7.4	90
TXG04-P	1/2"	SONY ICX414	656 x 494	9.9 x 9.9	56
TXG06-P	1/2"	SONY ICX415	776 x 582	8.3 x 8.3	64
TXG08-P	1/3"	SONY ICX204	1032 x 776	4.65 x 4.65	28
TXG13-P	1/2"	SONY ICX267	1392 x 1040	4.65 x 4.65	20
TXG14-P	2/3"	SONY ICX285	1392 x 1040	6.45 x 6.45	20
TXG14f-P	2/3"	SONY ICX285	1392 x 1040	6.45 x 6.45	30
TXG20-P	1/1.8"	SONY ICX274	1624 x 1236	4.4 x 4.4	16
TXG50-P	2/3"	SONY ICX625	2448 x 2050	3.45 x 3.45	15

Color

TXG03c-P	1/3"	SONY ICX424	656 x 490	7.4 x 7.4	90
TXG04c-P	1/2"	SONY ICX414	656 x 490	9.9 x 9.9	56
TXG06c-P	1/2"	SONY ICX415	776 x 578	8.3 x 8.3	64
TXG08c-P	1/3"	SONY ICX204	1028 x 772	4.65 x 4.65	28
TXG13c-P	1/2"	SONY ICX267	1384 x 1036	4.65 x 4.65	20
TXG14c-P	2/3"	SONY ICX285	1384 x 1036	6.45 x 6.45	20
TXG14cf-P	2/3"	SONY ICX285	1384 x 1036	6.45 x 6.45	30
TXG20c-P	1/1.8"	SONY ICX274	1624 x 1232	4.4 x 4.4	16
TXG50c-P	2/3"	SONY ICX625	2448 x 2050	3.45 x 3.45	15

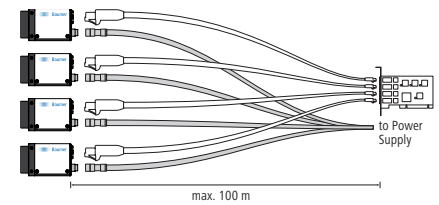
PoE Network Components for Industrial Use

Baumer engineers the best solutions for industrial vision applications by developing both innovative GigE cameras and robust network components like the GigE Power Switch and GigE Power Injector, supporting their industrial customers with complete system solutions. Baumer's high quality GigE components allow the true potential of Baumer's standard GigE or PoE cameras to be quickly and simply realized on various network configurations. The switches are designed to meet industrial standards with an operation voltage between 24 and 48 volts and DIN rail mounting. The injector can supply operating voltages for up to two

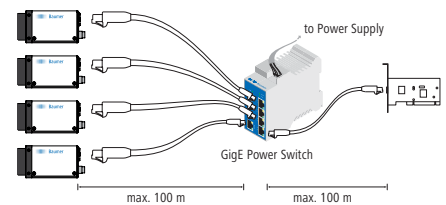
independent PoE cameras, where the 4-port switch allows you to connect up to 3 cameras on a single network interface card. All ports handle standard GigE cameras as well as PoE cameras. A clever technique automatically identifies which type of camera is connected to each port and delivers power only if requested by the camera. The GigE Power Switch Extended provides even more flexibility with 5 standard network jacks and an additional SFP port. The SFP port is able to handle either standard copper connections or fiber optic connections to realize set-ups in harsh environments or to communicate over longer distances.

Simplify your Set-up

Standard configuration



Power over Ethernet configuration



For Every Camera, the Right Network Components

Network component model	Ports	Power supply	Feeding (per port)	Media interface	Dimensions [mm]
GigE Power Injector	4x 8P8C Jack ¹⁾	24 - 48 V	14.5 W	transfer rate up to 1000 Mbit/sec	22.5 x 113.5 x 99
GigE Power Switch	4x 8P8C Jack ¹⁾	24 - 48 V	14.5 W	1000base-T, 100base-TX, 10base-T	22.5 x 113.5 x 99
GigE Power Switch Extended	5x 8P8C Jack ¹⁾ 1x SFP	24 - 48 V	14.5 W	1000base-T, 100base-TX, 10base-T	45 x 113.5 x 99

¹⁾ supporting Power over Ethernet (PoE)





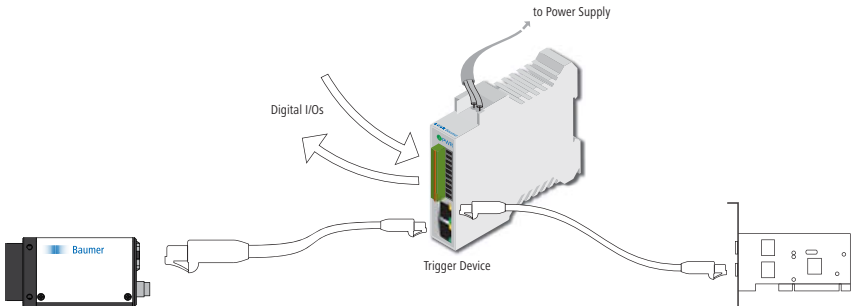
The Trigger Device – Timing your GigE Application

Baumer’s new Trigger Device expands the network capability of the GigE Power Series components. Through the simple integration of process-relevant sensors such as light barriers and encoders, the Trigger Device allows the control of simple camera applications without the use of a programmable logic controller (PLC).

Controlling time-critical Processes over the Network

With eight inputs and eight outputs, the Trigger Device can control up to four completely independent systems. This significant advantage allows the real-time triggering of a single camera or the simultaneous triggering of a group of cameras. To this end, the different input variables of the connected sensors are evaluated, the correct trigger points are calculated for the process and image acquisition is triggered over the network. Using the outputs, the device can also control process-relevant steps in the sequence. All functions are implemented in hardware to achieve

short latency times and jitter times of less than 5 µsec. Configuring the Trigger Device is simple but comprehensive and can be done over the network using a convenient and intuitive software tool.



The Right Trigger Device for Every Process

Network component model	Ports	Power supply	Feeding (per port)	Media interface	Dimensions [mm]
Trigger Device 2 Port	8 Inputs 8 Outputs 2x 8P8C Jack ¹⁾	24 - 48 V	14.5 W	1000base-T, 100base-TX, 10base-T	22.5 x 113.5 x 99
Trigger Device 5 Port	8 Inputs 8 Outputs 5x 8P8C Jack ¹⁾	24 - 48 V	14.5 W	1000base-T, 100base-TX, 10base-T	45 x 113.5 x 99

¹⁾ supporting Power over Ethernet (PoE)

IP67 Cameras

GigE Cameras with IP67-rated Housing

To meet harsh and demanding end use applications, Baumer has engineered the new GigE cameras with special IP67-rated enclosures that withstand both moisture and particulate contamination. All critical camera components are contained within the IP67 housing, including the electronics, the CCD sensor, and the internal C-Mount adapter to ensure a protected environment for a standard lens.

Baumer
IP67



For Every Task, the Right IP67 Camera

Camera model	CCD sensor format	Sensor	Resolution [Pixel]	Pixel size [µm]	Full frames [max. fps]
Monochrome					
TXG03-17 / -E7	1/3"	SONY ICX424	656 x 494	7.4 x 7.4	90
TXG04-17 / -E7	1/2"	SONY ICX414	656 x 494	9.9 x 9.9	56
TXG06-17 / -E7	1/2"	SONY ICX415	776 x 582	8.3 x 8.3	64
TXG08-17 / -E7	1/3"	SONY ICX204	1032 x 776	4.65 x 4.65	28
TXG13-17 / -E7	1/2"	SONY ICX267	1392 x 1040	4.65 x 4.65	20
TXG14-17 / -E7	2/3"	SONY ICX285	1392 x 1040	6.45 x 6.45	20
TXG14f-17 / -E7	2/3"	SONY ICX285	1392 x 1040	6.45 x 6.45	30
TXG20-17 / -E7	1/1.8"	SONY ICX274	1624 x 1236	4.4 x 4.4	16
TXG50-17 / -E7	2/3"	SONY ICX625	2448 x 2050	3.45 x 3.45	15

Color

TXG03c-17 / -E7	1/3"	SONY ICX424	656 x 490	7.4 x 7.4	90
TXG04c-17 / -E7	1/2"	SONY ICX414	656 x 490	9.9 x 9.9	56
TXG06c-17 / -E7	1/2"	SONY ICX415	776 x 578	8.3 x 8.3	64
TXG08c-17 / -E7	1/3"	SONY ICX204	1028 x 772	4.65 x 4.65	28
TXG13c-17 / -E7	1/2"	SONY ICX267	1384 x 1036	4.65 x 4.65	20
TXG14c-17 / -E7	2/3"	SONY ICX285	1384 x 1036	6.45 x 6.45	20
TXG14cf-17 / -E7	2/3"	SONY ICX285	1384 x 1036	6.45 x 6.45	30
TXG20c-17 / -E7	1/1.8"	SONY ICX274	1624 x 1232	4.4 x 4.4	16
TXG50c-17 / -E7	2/3"	SONY ICX625	2448 x 2050	3.45 x 3.45	15

I7: Aluminum version, E7: Stainless steel version (The different versions are available on request.)

Flexibility in a Compact Design



These industrial cameras have a diameter of 65 mm and a length ranging from 98 to 140 mm. They offer flexibility in a robust, compact design. The enclosure supports four different tube lengths (52, 62, 71 and 94 mm), each length corresponding to your applica-

tion specific lens. Depending on the task, the cameras can be ordered as an aluminum or stainless steel version.

The camera features an IP67-rated M12 connector to interface the camera with the network.

For Every Lens, the Right Tube

Tube type	Tube length [mm]	Distance C-Mount – Cover glass [mm]	Distance C-Mount – Cylinder bottom [mm]
Tube 52 mm	51.8	32.6	30
Tube 62 mm	61.8	42.6	40
Tube 71 mm	70.8	51.6	49
Tube 94 mm	93.8	74.6	72

Find the right tube length for your application: more information can be found in the Baumer User's Guide

Multi I/Os

Increasing Flexibility by using Additional I/Os

The GigE cameras of the TXG series are available with additional I/Os to increase the flexibility of your vision system. 6 connections enable you to control your application much more

precisely. Each camera comes with a trigger input and a flash output. The remaining 4 ports are available in two different versions.



Standard Digital I/Os

In the standard Multi I/O version (m3), the cameras provide trigger, flash and 2 additional digital inputs as well as 2 more digital outputs. The inputs can be analyzed and processed on the software side to control the camera.

The outputs provide internal information like TriggerReady, TriggerOverlapped, TriggerSkipped or any user-defined command.



Pulse Width Modulation (PWM)

In this product configuration (m0), Baumer offers a special functionality in order to control LED lighting directly from the camera. Therefore, the camera is equipped with 4 additional outputs next to the trigger and flash connection. Each output provides a user-defined pulse width modulated signal which can be tailored to drive custom-designed LED lighting. Using these

innovative outputs, there is no need for an additional lighting controller. Within the camera output settings, it is possible to control the duty cycle as well as the frequency of the modulated signal. Each port is independent and provides a current of 100 mA. In combination with the sequencer functionality, this version provides a cost-effective alternative to external lighting controllers.

Advanced Cameras with Multiple I/Os

Camera model	CCD sensor format	Sensor	Resolution [Pixel]	Pixel size [µm]	Full frames [max. fps]
Monochrome					
TXG03m3 / m0	1/3"	SONY ICX424	656 x 494	7.4 x 7.4	90
TXG04m3 / m0	1/2"	SONY ICX414	656 x 494	9.9 x 9.9	56
TXG06m3 / m0	1/2"	SONY ICX415	776 x 582	8.3 x 8.3	64
TXG08m3 / m0	1/3"	SONY ICX204	1032 x 776	4.65 x 4.65	28
TXG13m3 / m0	1/2"	SONY ICX267	1392 x 1040	4.65 x 4.65	20
TXG14m3 / m0	2/3"	SONY ICX285	1392 x 1040	6.45 x 6.45	20
TXG14fm3 / m0	2/3"	SONY ICX285	1392 x 1040	6.45 x 6.45	30
TXG20m3 / m0	1/1.8"	SONY ICX274	1624 x 1236	4.4 x 4.4	16
TXG50m3 / m0	2/3"	SONY ICX625	2448 x 2050	3.45 x 3.45	15

Color

TXG03cm3	1/3"	SONY ICX424	656 x 490	7.4 x 7.4	90
TXG04cm3	1/2"	SONY ICX414	656 x 490	9.9 x 9.9	56
TXG06cm3	1/2"	SONY ICX415	776 x 578	8.3 x 8.3	64
TXG08cm3	1/3"	SONY ICX204	1028 x 772	4.65 x 4.65	28
TXG13cm3	1/2"	SONY ICX267	1384 x 1036	4.65 x 4.65	20
TXG14cm3	2/3"	SONY ICX285	1384 x 1036	6.45 x 6.45	20
TXG14cfm3	2/3"	SONY ICX285	1384 x 1036	6.45 x 6.45	30
TXG20cm3	1/1.8"	SONY ICX274	1624 x 1232	4.4 x 4.4	16
TXG50cm3	2/3"	SONY ICX625	2448 x 2050	3.45 x 3.45	15

m3: standard digital I/O version, m0: including pulse width modulation

Data Transfer up to 800 Mbit/sec

Baumer offers the familiar FireWire™ interface with the TXD and TXF camera series. These cameras support the IEEE1394b standard and will amaze you with 800 Mbit/sec data transfer rates. In addition, both series are downwardly compatible with the older IEEE1394a standard.



TXF Series – With Baumer FCAM a Step ahead of DCAM

With the TXF series we optimize the FireWire™ cameras specially for professional use in industrial systems. The cameras rely on asynchronous data transmission using a secure protocol, called Baumer FCAM. Besides the increased system reliability, the TXF cameras benefit from full utilization of a 80 MByte/sec bus communication.

TXD Series – DCAM Compliance simplifies Integration

The TXD series uses the standardized DCAM (IIDC V1.31) protocol for data transmission. This protocol simplifies camera integration using the generic programming interface Baumer-GAPI or any other image processing software supporting this standard.

	Baumer FCAM	DCAM (IIDC)
Protocol type	Asynchronous	Isochronous
Bandwidth	100% (up to 80 MByte/sec net)	80% (max. 64 MByte/sec net)
Transfer reliability	Guaranteed lossless data exchange	No confirmation or error correction
Multi-camera operation	Dynamic bandwidth distribution	Manual bandwidth distribution
Interface	Baumer FCAM driver	DCAM (IIDC V1.31)
Image format change	"On the fly" in real-time	After stop/start

The Versatility of our FireWire™ Cameras

Camera model	CCD sensor format	Sensor	Resolution [Pixel]	Pixel size [µm]	Full frames [max. fps]
Monochrome					
TX...03	1/3"	SONY ICX424	656 x 494	7.4 x 7.4	90
TX...06	1/2"	SONY ICX415	776 x 582	8.3 x 8.3	64
TX...08	1/3"	SONY ICX204	1032 x 776	4.65 x 4.65	28
TX...13	1/2"	SONY ICX267	1392 x 1040	4.65 x 4.65	20
TX...14	2/3"	SONY ICX285	1392 x 1040	6.45 x 6.45	20
TX...20	1/1.8"	SONY ICX274	1624 x 1236	4.4 x 4.4	16
TX...50	2/3"	SONY ICX625	2448 x 2050	3.45 x 3.45	15 (13) ¹⁾
Color					
TX...03c	1/3"	SONY ICX424	640 x 480	7.4 x 7.4	90
TX...06c	1/2"	SONY ICX415	768 x 574	8.3 x 8.3	64
TX...08c	1/3"	SONY ICX204	1024 x 768	4.65 x 4.65	28
TX...13c	1/2"	SONY ICX267	1384 x 1032	4.65 x 4.65	20
TX...14c	2/3"	SONY ICX285	1384 x 1032	6.45 x 6.45	20
TX...20c	1/1.8"	SONY ICX274	1616 x 1228	4.4 x 4.4	16
TX...50c	2/3"	SONY ICX625	2440 x 2042	3.45 x 3.45	15 (13) ¹⁾

... available as TXF (FireWire™ IEEE1394b FCAM) and TXD (FireWire™ IEEE1394b DCAM)

¹⁾ lower frame rates concerns TXD (FireWire™ IEEE1394b DCAM)

EX Camera Family

Powerful CMOS Cameras

Baumer's EX camera family provides innovation and powerful features based on advanced CMOS technology. In comparison to CCD cameras, CMOS imaging is able to deliver high frame rates, direct readout of selected pixels and low power consumption. In comparison to the industrial TX cameras, with a housing of 36 x 36 x 42 mm the design is even more compact. Baumer's high quality engineering, development and manufacturing ensure that these cameras have optimal image quality and a very attractive price/performance ratio.

GEN<i>i>CAM

GiG
VISION



Cameras to satisfy different Demands

Selected models of the EX family have expanded modes of operation such as parameter-controlled High Dynamic Range, Auto Exposure and Auto Gain. These models are particularly well-suited for use under variable light conditions. As a special feature, the EXG04

provide up to 250 images per second with VGA resolution and is targeted for entry level of high-speed image acquisition. In contrast, the EXG50 camera is focused on high-resolution 5 megapixel images for very detailed studies.

The Right CMOS Camera for Every Job

Camera model	CMOS sensor format	Sensor	Resolution [Pixel]	Pixel size [µm]	Full frames [max. fps]
Monochrome					
EXG03	1/3"	Aptina MT9V024	752 x 480	6.0 x 6.0	60
EXG04	1/2"	Cypress LUPA-300	640 x 480	9.9 x 9.9	250
EXG50	1/2.5"	Aptina MT9P031	2592 x 1944	2.2 x 2.2	14
Color					
EXG03c	1/3"	Aptina MT9V024	752 x 480	6.0 x 6.0	60
EXG04c	1/2"	Cypress LUPA-300	640 x 480	9.9 x 9.9	250
EXG50c	1/2.5"	Aptina MT9P031	2592 x 1944	2.2 x 2.2	14

SX Camera Family

Powerful SX Cameras built on Kodak CCD Technology

Kodak

Image Sensors

The high-performance cameras of the SX family are based on advanced Kodak CCD technology specially developed for industrial applications. The cameras are designed for high sensitivity and an outstanding signal-to-noise ratio. A flexible readout architecture

allows the use of 1, 2 or 4 sensor outputs and thus achieves very high frame rates. The SX camera platform was developed from the ground up to accommodate increased resolution and frame rate requirements. By using the most advanced FPGA technology, the maximum performance was achieved. At the same time, there are sufficient resources available for the integrated pre-processing of complex algorithms. System integration is simple benefiting from the compact and rugged housing measuring 52 x 52 x 54 mm as well as comprehensive software.



Our Innovative SX Cameras

Camera model	CCD sensor format	Sensor	Resolution [Pixel]	Pixel size [µm]	Full frames [max. fps]
Monochrome					
SXC10	1/2"	Kodak KAI-01050	1024 x 1024	5.5 x 5.5	120
SXC20	2/3"	Kodak KAI-02050	1600 x 1200	5.5 x 5.5	68
SXC21	2/3"	Kodak KAI-02150	1920 x 1080	5.5 x 5.5	64
SXC80	4/3"	Kodak KAI-08050	3296 x 2472	5.5 x 5.5	16
Color					
SXC10c	1/2"	Kodak KAI-01050	1024 x 1024	5.5 x 5.5	120
SXC20c	2/3"	Kodak KAI-02050	1600 x 1200	5.5 x 5.5	68
SXC21c	2/3"	Kodak KAI-02150	1920 x 1080	5.5 x 5.5	64
SXC80c	4/3"	Kodak KAI-08050	3296 x 2472	5.5 x 5.5	16

Excellent Image Quality at High Frame Rates

Baumer offers an extensive selection of SX cameras with resolutions from 1 to 8 megapixel. All matrix cameras are available in monochrome or color. They are distinguished by their high resolution and frame rate while providing excellent image quality at the same time. A comprehensive set of series features including a large image buffer and 6 digital I/Os offer a high degree of flexibility. The cameras using CameraLink® Base as the external interface, allowing transfer rates up to 255 MByte/sec with minimal delay.

GEN*i*CAM

**CAMERA
Link**

HQ Color Technology

Brilliant Colors for Maximum Quality Requirements

For the most demanding quality requirements, Baumer provides color cameras with the new HQ Color Technology. Cameras equipped with this technology use the internal real-time Baumer CIELAB Engine to deliver brilliant colors with a single sensor that rival 3CCD camera performance. The patented

algorithm also excels in advanced edge sharpness, a feature that provides a determination of contours even on cohesive color areas.

Cameras with HQ Color Technology significantly improve the color fidelity and color noise, ensuring high stability with

minimum color deviation. The cameras can be adapted through a configurable color processing system to the requirements of the most varied applications.



High color fidelity with the HQ Color Technology



A Single Technology – The Widest Range of Cameras

The HQ Color Technology is independent of the sensor and interface and finds application in the widest range of Baumer cameras. While the SX cameras already provide a powerful FPGA for this task, the TX cameras can be equipped with an additional FPGA color processor module to achieve this brilliant color output.

Discover the many Applications

- Food inspection
- Pharmaceutical inspection
- Life science imaging
- Certifying print images
- Packaging inspection



Intelligent Software Integration

The Baumer-GAPI – Flexibility and Simplicity in a Programming Interface

The Baumer-GAPI is a generic application programming interface (API) and is distinguished by its high degree of user friendliness, portability, stability and scalability. Simply put, it is easy to integrate any Baumer camera into your software environment. It supports the Windows and Linux (32/64 bit) operating systems with various programming languages (C, C++, C# for .NET™). Cameras with different hardware interfaces (Gigabit Ethernet, CameraLink® and FireWire™) can be operated uniformly and at the same time with one PC system.

Baumer
GAPI
The SDK



Our Software Partners

We work closely with our software partners to ensure a perfect integration into their software packages.



Third Party Software

Consistent support of standards such as GigE Vision®, GenICam™ and DCAM (IIDC V1.31) enables simple, trouble-free integration of the Baumer cameras with image processing software that also supports these standards.



and many other suppliers

Accessories

Competence that goes further – Proper Accessories to complete the System

A high quality image processing system needs more than just a camera. Combining all the components in just the right way guarantees the best image quality and the success of your application. Baumer helps you select the right accessories for your cameras and offers perfectly matched components for every type of interface. Whether you need cables, network components, mounts or lenses, with Baumer, you get everything you need from one, reliable source. Profit from our proven knowledge and professional support.



Reliable cables are essential for a high quality image transmission. Baumer offers a variety of different cables and connectors including standard Ethernet, CameraLink® or FireWire™ cables and high flex cables for demanding environments.

Cables and Connectors



A PCI interface board is always the entry point for the camera to your PC based system. Baumer offers for each setup the right connection.

PCI Interface Boards



With our adapters and mountings, we guarantee a perfect and stable integration of the camera into your application.

Adapters and Mountings



A camera is only as good as the quality of the lens used. Baumer works together with different partners to ensure that you have the best lens for your camera and application.

Lenses

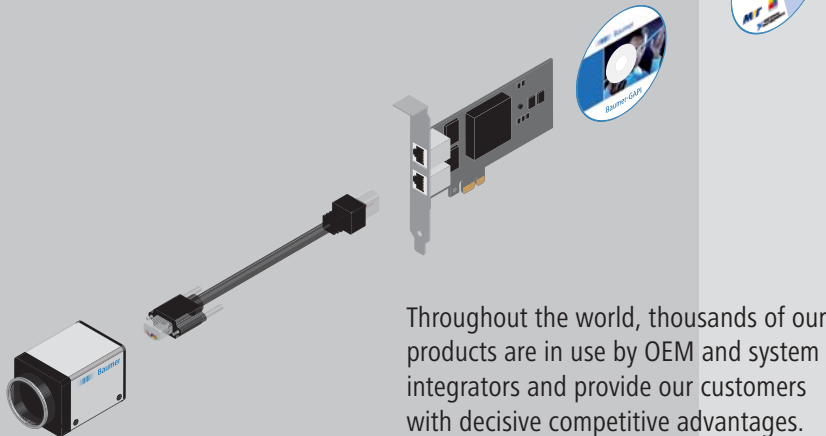
Competence in Vision Technologies

With Innovative Technologies Leading the Way into the Future

Finding the right imaging solution is simple when you work with skilled experts with many years of experience in vision technologies. Baumer's engineering and technical staff are dedicated to using their knowledge and practical understanding to develop next generation solutions for our customers. Our core competence covers all vision disciplines from the sensor to signal processing and to driver interfaces for fast integration into vision systems.



Our Core Competence



Throughout the world, thousands of our products are in use by OEM and system integrators and provide our customers with decisive competitive advantages.

Our Competitive Advantage is Innovation

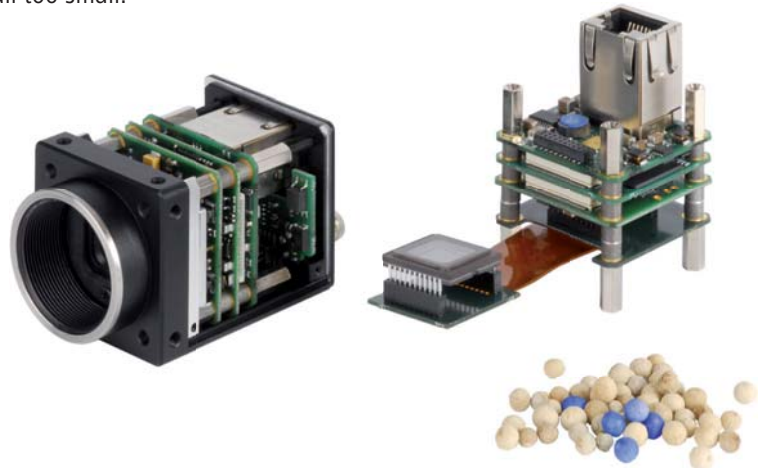
Our goal is to be on the cutting edge of imaging technology and to set new standards with our innovation. We continuously develop new products to meet the future needs of our customers in advance of their requirements.

Customer-specific Solutions from Baumer

We listen to our customers and work closely with them. Thanks to our optimal market presence, many solutions come from individual, on-site cooperation. For us, no challenge is too big, no detail too small.

Quality and Precision

We are committed to quality from the start and provide reliable products and solutions to benefit our customers. Baumer stands for capability, reliability and precision.



Our Values



Our Customers are our Focus

Even though Baumer serves many different regions and markets, all Baumer employees everywhere follow the same core values. Partnership, precision and a pioneering spirit form the basis of our integrated corporate culture and dictate our actions.

The Digital Industrial Cameras from Baumer –
Designed to keep you one Step ahead

Are you feeling inspired?
www.baumer.com/cameras

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