

AREA SCAN CAMERAS



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**High quality
image cameras
with smart features.**

Area scan cameras are the most commonly used cameras in machine vision. They are ideal for fast inspection applications.

With many years of experience in the machine vision industry, Opto Engineering® selected a series of high performance cameras to answer your needs.

Thanks to the improvement of camera technologies in the recent years, various types of cameras are now available in the market to answer different challenges.

Following our principles, we have selected robust, compact, high image quality cameras for industrial applications including measurement, high-speed inspection, security and much more. The right camera features can make your vision system smarter, simpler and more efficient.



Refer to specific datasheets available at www.opto-e.com for product compliancy with regulations, certifications and safety labels.

COE-G series

GenICam® PoE cameras

NEW



COE-G series includes Gigabit Ethernet cameras equipped with the latest sensors, ranging from high speed VGA to the latest 12MP SONY Pregius sensor, which deliver GigE connectivity with high frame rate.

The resulting excellent image quality is ensured by well-matched Opto Engineering's excellent lenses. PoE connectivity allows a single cable to power the camera and connect to the computer for data transfer.

Robust design allows installation into industrial scenarios without the risk of mechanical failure and GenICam® compliant SDK allows easy coding with most software packages.

Available with mono and color options, there are a number of possibilities for most applications.

KEY ADVANTAGES

High quality sensors

New SONY Pregius CMOS Global shutter sensors provide high quality images.

GigEVision® protocol & GenICam® standard

Standard vision SDK platform for easy integration in existing software.

Full GenICam® compliant: easy to integrate

GenICam® compliant SDK package provides more flexibility to Vision Systems.

GigE PoE compliance

With the COE-G cameras, you don't need separate cables to transfer the information to the computer and provide power to the camera.

120 MB RAM and Frame Rate up to 300fps

High frame rate ideal for high speed applications. The internal memory up to 120MB guarantees no image loss and enables useful features like Record / Playback and sequence recordings.

Sensor Sizes from ¼" to 1.1" to fit all application requirements

Find exactly the sensor you need for your needs.

FULL RANGE OF COMPATIBLE ACCESSORIES



CBETH003.
COE I/O cables

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Part number	Sensor specifications								Camera specifications				Compatibility
	Image sensor format	Resolution (pixel)	Mpixel	Pixel size (µm)	Sensor name	Sensor type	Shutter type	Mono/Color	Interface	Frame rate (Hz) ¹	Mount	Filter	Optics
COE-003-x-POE-010-yy-C	1/4"	640 x 480	0.3	4.8pix	Python 300	CMOS	Global	M/C	GIGE	173	C	mono Glass, color Infrared cut	TC, TCCR, TCMS, TCLWD, TCCX, TCCXQ, TCZRS, TCBENCH, TCCRBENCH, TCEDGEVIS, MC, MC3-03X, MCSM, MCZR, MZMT12X, ENMT, ENMP, ENHR, ENVF
COE-004-x-POE-010-yy-C	1/4"	640 x 480	0.3	4.8pix	Python 300	CMOS	Global	M/C	GIGE	300	C	mono Glass, color Infrared cut	
COE-003-x-POE-020-yy-C	1/3"	640 x 480	0.3	7.4pix	RJ33B4AD0DT	CCD	Global	M/C	GIGE	200	C	mono Glass, color Infrared cut	TC, TCCR, TCMS, TCLWD, TCCX, TCCXQ, TCZRS, TCBENCH, TCCRBENCH, TCEDGEVIS, PC, PCCD, PCHI, PCPW, PCBP, MC, MC3-03X, MCSM, MCZR, MZMT12X, ENMT, ENMP, ENHR, ENVF
COE-012-x-POE-020-yy-C	1/3"	1280 x 960	1.2	3.75pix	RJ33J4CA3DE	CCD	Global	M/C	GIGE	30	C	mono Glass, color Infrared cut	
COE-004-x-POE-021-yy-C	1/2.9"	720 x 540	0.4	6.9pix	IMX287	CMOS	Global	M/C	GIGE	291	C	mono Glass, color Infrared cut	
COE-016-x-POE-021-yy-C	1/2.9"	1440 x 1080	1.6	3.45pix	IMX273	CMOS	Global	M/C	GIGE	70	C	mono Glass, color Infrared cut	
COE-050-M-POE-023-yy-C	1/2.5"	2592 x 1944	5.0	2.2pix	MT9P031	CMOS	Rolling	M	GIGE	14	C	mono Glass	
COE-106-x-POE-031-yy-C	1/2.3"	3840 x 2748	10.0	1.67pix	MT9J003	CMOS	Rolling	M/C	GIGE	11	C	mono Glass, color Infrared cut	
COE-013-x-POE-030-yy-C	1/2"	1280 x 1024	1.3	4.8pix	Python1300	CMOS	Global	M/C	GIGE	90	C	mono Glass, color Infrared cut	
COE-032-x-POE-040-yy-C	1/1.8"	2064 x 1544	3.1	3.45pix	IMX265	CMOS	Global	M/C	GIGE	35	C	mono Glass, color Infrared cut	
COE-063-x-POE-040-yy-C	1/1.8"	3096 x 2080	6.4	2.4pix	IMX178	CMOS	Rolling	M/C	GIGE	17	C	mono Glass, color Infrared cut	
COE-122-x-POE-041-yy-C	1/1.7"	4024 x 3036	12.2	1.85pix	IMX226	CMOS	Rolling	M/C	GIGE	9	C	mono Glass, color Infrared cut	
COE-023-x-POE-050-yy-C	2/3"	1920 x 1200	2.3	4.8pix	PYTHON 2000	CMOS	Global	M/C	GIGE	50	C	mono Glass, color Infrared cut	
COE-050-x-POE-050-yy-C	2/3"	2464 x 2056	5.0	3.45pix	IMX264	CMOS	Global	M/C	GIGE	23	C	mono Glass, color Infrared cut	TC, TCCR, TCMS, TCLWD, TCCX, TCCXQ, TCZRS, TCBENCH, TCCRBENCH, TCEDGEVIS, PC, PCCD, PCHI, PCPW, PCMP, TCCAGE, MC, MC3-03X, MCSM, MCZR, MZMT12X, ENMT, ENMP, ENHR, ENVF
COE-023-x-POE-060-yy-C	1/1.2"	1936 x 1216	2.3	5.86pix	IMX249	CMOS	Global	M/C	GIGE	40	C	mono Glass, color Infrared cut	
COE-089-x-POE-070-yy-C	1"	4112 x 2176	8.9	3.45pix	IMX267	CMOS	Global	M/C	GIGE	13	C	mono Glass, color Infrared cut	TC, TCCR, TCMS, TCLWD, TCCX, TCCXQ, TCZRS, TCBENCH, TCCRBENCH, TCEDGEVIS, MC, MC3-03X, MCSM, MCZR, MZMT12X, ENMT, ENMP, ENHR, ENVF
COE-053-x-POE-070-yy-C	1"	2592 x 2048	5.3	4.8pix	Python 5000	CMOS	Global	M/C	GIGE	20	C	mono Glass, color Infrared cut	
COE-123-x-POE-080-yy-C	1.1"	4112 x 3008	12.3	3.45pix	IMX304	CMOS	Global	M/C	GIGE	9	C	mono Glass, color Infrared cut	TC, TCCR, TCMS, TCLWD, TCCX, TCCXQ, TCZRS, TCBENCH, TCCRBENCH, TCEDGEVIS, MC, MC3-03X, MCSM, MCZR, MZMT12X, ENMT, ENMP, ENHR, ENVF

¹ Frame rate relative to the monochrome version.

Ordering information:

How to order

X M = Monochrome
C = Color

YY Glass/Infrared cut filter supported

- All COE-G are POE supported.
- All COE-G are C-mount.
- Specific product datasheet and user manual are available at www.opto-e.com

mvBlueCOUGAR series

GigE & Dual GigE GenICam® cameras



* RT **GigE** VISION **GEN<i>i</i>CAM**

mvBlueCOUGAR series includes Gigabit Ethernet cameras, compliant to the GigE Vision® and GenICam® image processing standards. The latest building blocks are used in one of the smallest, yet rock solid housing in the industry.

These cameras are optimized for machine vision applications, relying on high frame rates combined with low latency image transport. Also, the images can be precisely optimized for viewing applications in the life science and medical industries, where it is required to have the utmost realistic images in terms of gray scale shades and color fidelity, combined with optimum sensitivity and signal-to-noise ratio, are required.

Opto Engineering® selected a number of cameras that are tailored for industrial applications, based on high image quality, compactness, robustness and ease of use.

A large FPGA and extra RAM on board provide quick and reliable image data processing without overloading your CPU, also giving you the opportunity to easily implement custom features. Extra features like Burst Mode, Counter/Timers and Color Processing can simplify your vision system configuration.

The fully GenICam® compliant SDK package, mvIMPACT SDK, allows the vision system to be more flexible.

Complete documentation of the SDK gives you access to many special camera features that can simplify your life when developing your vision system development. The driver of mvBlueCOUGAR is supported by a wide range of third-party softwares, Fabimage, e.g. Halcon, COGNEX, Matlab, Labview...etc.

KEY ADVANTAGES

High quality sensors available

New SONY Pregius CMOS Global shutter sensors are available for GigE vision® cameras.

High speed performance up to 164 Hz

High frame rate ideal for high speed inspection.

RAM up to 256 MB

Internal memory guarantees no image loss.

Large FPGA on board

Reduces CPU load and allows more features to be added.

GenICam® fully compliance

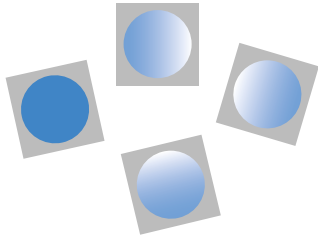
GenICam® compliant SDK package provides more flexibility to Vision System.

mvBlueCOUGAR series

GigE & Dual GigE GenICam® cameras

Suitable filters for your lighting situation or environmental condition.

Choose between daylight cut (Cold Mirror), IR cut (Hot Mirror) or glass (without filter).



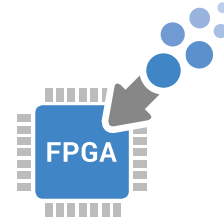
For counting and triggering events, counters are a handy feature for many applications.

The counter allows you to generate variable output signals, control illumination systems, synchronize multiple cameras, and a lot more.



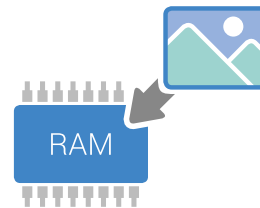
Large camera FPGA reduces CPU load of your host system.

Extra FPGA space allows more features and modifications to be implemented. Custom features can also be supplied.



With the internal image memory, no image will be lost again.

The internal memory buffers images and enables useful features like Record / Playback, Pre-trigger as well as sequence recordings.



Part number	Sensor specifications							Camera specifications		Compatibility
	Image sensor format	Resolution (pixel)	Mpixel	Pixel size (µm)	Sensor name	Sensor type	Shutter type	Interface	Frame rate (Hz)	Optics
RT-mvBC-X100w	1/3"	752 x 480	0.36	6.00	MT9V034	CMOS	Pipelined / Global	GigE	117	TC, TCCR, TCMS, TCLWD, TCCX, TCCXQ, TCZR5, TCBENCH, TCCRBENCH, TCEDGEVIS, PC, PCCD, PCHI, PCBP, PCPW, PCMP, TCCAGE, MC, MC3-03X, MCSM, MCZR, MZMT12X, ENMT, ENMP, ENHR, ENVF
RT-mvBC-X100f	1/2.9"	728 x 544	0.40	6.90	IMX287	CMOS	global	GigE	436.9 / 299.8 ¹	
RT-mvBC-X102f	1/2.9"	1456 x 1088	1.58	3.45	IMX273	CMOS	global	GigE	126.3/75	
RT-mvBC-XD102f	1/2.9"	1456 x 1088	1.58	3.45	IMX273	CMOS	global	Dual GigE	226.5 / 149.9 ¹	
RT-mvBC-X105	1/2.5"	2592 x 1944	5.04	2.20	MT9P031	CMOS	Rolling / Global Reset	GigE	14,4	
RT-mvBC-X1010	1/2.3"	3856 x 2764	10.66	1.67	MT9J003	CMOS	Rolling / Global Reset	GigE	8,7	
RT-mvBC-X104i	1/1.8"	2064 x 1544	3.19	3.45	IMX265	CMOS	global	GigE	55.4 / 37 ¹	
RT-mvBC-XD104h	1/1.8"	2064 x 1544	3.19	3.45	IMX252	CMOS	global	Dual GigE	76	
RT-mvBC-X105b	2/3"	2464 x 2056	5.07	3.45	IMX264	CMOS	global	GigE	35.6 / 23.5 ¹	
RT-mvBC-XD105a	2/3"	2448 x 2048	5.01	3.45	IMX250	CMOS	global	Dual GigE	46	
RT-mvBC-X104f	1/1.2"	1936 x 1216	2.35	5.86	IMX249	CMOS	global	GigE	41	TC2MHR, TC4MHR, TCCR2M, TCCR4M, TCDP Plus, TCCX2M, EN2M, ENUV2M, EN4K
RT-mvBC-XD104d	1/1.2"	1936 x 1214	2.35	5.86	IMX174	CMOS	global	Dual GigE	128 / 105 ¹	
RT-mvBC-X109b	1"	4112 x 2176	8.95	3.45	IMX267	CMOS	global	GigE	20.8 / 13.2 ¹	
RT-mvBC-XD109b	1"	4112 x 2176	8.947712	3.45	IMX267	CMOS	global	Dual GigE	31.9 / 26.5 ¹	
RT-mvBC-X1012b	1.1"	4112 x 3008	12.37	3.45	IMX304	CMOS	global	GigE	15.0 / 9.6 ¹	
RT-mvBC-XD107	1.1"	3216 x 2208	7.10	4.50	IMX420	CMOS	global	Dual GigE	60.2 / 33.4 ¹	
RT-mvBC-XD1012b	1.1"	4112 x 3008	12.37	3.45	IMX304	CMOS	global	Dual GigE	23.2 / 19.2 ¹	

- ¹ Burst mode / streaming. Burst mode buffers the acquired images and decouples the acquisition from the image output. That way you can use the sensor's maximum frame rate independently of the available bandwidth.
- ² EMVA1288 measurement data of gray scale version are available.

Ordering information

- All cameras are available in Monochrome or Color Version at no extra cost.
- IR cut filter integrated by default. Other filters can be integrated on request at no extra cost.
- Cameras are available in OEM board version.
- Most cameras are also available in GigE POE version.
- Extended Temperature range -40°C to +65°C optional.
- Industrial connection concept (POE-I) is supported.
- PLC inputs available.
- WiFi function optional.



SPECIAL FEATURES

- **Electronic mirror functionality:** horizontal / vertical (available for CMOS sensor)
- **Internal readable temperature sensor with programmable alarm threshold**
- **Enhanced color and I/O functionality**
- **Frame Average**
- **Binning**
- **Pre-trigger recording**
- **Trigger Overlap**

MORE FEATURES AVAILABLE FOR MVBLUECOUGAR-XD CAMERAS

- **Burst mode**
- **Storable user configurations (5 config.) and user parameters (512 bytes on EEPROM)**

FULL RANGE OF COMPATIBLE ACCESSORIES

	CBETH003 CBGPIO001	p. 266
	RT-MV-DC1201-BCSXIO-REV2	p. 264
FULL RANGE OF FIXED FOCAL LENGTH LENSES		
	EN2MP series, EN5MP series, ENMP series, ENHR series	p. 108-111, 114

Mechanical specifications

	mvBlueCOUGAR-X series	mvBlueCOUGAR-XD series
Dimension (mm)	39.8 x 39.8 x 35	50 x 50 x 32
Weight (g)	110	200
Lens Mount	Adjustable C-mount	Adjustable C-mount
	CS-mount (optional)	CS-mount (optional)
	S-mount (optional)	

Electronical specifications

	mvBlueCOUGAR-X series		mvBlueCOUGAR-XD series	
Interface	Gigabit Ethernet		Dual Gigabit Ethernet	
RAM	64 MB		256 MB	
Connectors	RJ-45 Gigabit Ethernet, lockable		2x RJ-45 Gigabit Ethernet, lockable	
	Hirose type 12-pin, lockable		2x Hirose type 12-pin, lockable	
I/O interface	2 inputs (opto-isolated)	3-24V +/-1V	4 inputs (opto-isolated)	3-24V +/-1V
	4 outputs (high-side)	10-24V, 700 mA	4 outputs (high-side)	10-24V, 700 mA
	POE (optional) / POE-I (optional)			
Power Supply (VDC)	12 - 24		12 - 24	
Power consumption (W)	< 5.5		< 8.5	
Operating temperature (°C)	0 to 45		0 to 45	
Operating humidity (%RH)	30 to 80		30 to 80	
Storage temperature (°C)	-20 to 60		-20 to 60°C	
Storage humidity (%RH)	20 to 90		20 to 90	

COE-U series

USB 3.0 GenICam® cameras

NEW



COE-U series includes USB3 Vision® cameras equipped with the latest sensors, ranging from high speed VGA to the latest 1.1" 12MP SONY Pregius sensor, which deliver USB 3.0 connectivity with high frame rate. The resulting excellent image quality is ensured by well-matched Opto Engineering's excellent lenses.

The COE-U series allows the best sensors to be available with USB 3.0 at a reasonable cost. Robust design allows installation into industrial scenarios without the risk of mechanical failure. Only one cable is needed as USB 3.0 cable handles both data and power to the camera.

KEY ADVANTAGES

USB 3.0 connectivity

Easy connectivity to most new computers with 5gbps bandwidth.

USB3 Vision® protocol & GenICam® standard

Standard vision SDK platforms for easy integration in existing software.

Full GenICam® compliant: easy to integrate

GenICam® compliant SDK package provides more flexibility to Vision Systems®.

High quality sensors

New SONY Pregius CMOS Global shutter sensors provide high quality images.

Frame Rate up to 173 fps

High frame rate ideal for high speed applications.

Sensor Sizes from ¼" to 1.1" to fit all application requirements

Find exactly the sensor you need for your needs.

FULL RANGE OF COMPATIBLE ACCESSORIES



CBETH003.
COE I/O cables

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Part number	Sensor specifications								Camera specifications				Compatibility
	Image sensor format	Resolution (pixel)	Mpixel	Pixel size (µm)	Sensor name	Sensor type	Shutter type	Mono/Color	Interface	Frame rate (Hz) ¹	Mount	Filter	Optics
COE-003-x-USB-010-yy-C	1/4"	640 x 480	0.3	4.8pix	Python 300	CMOS	Global	M/C	USB 3.0	800	C	mono Glass, color Infrared cut	TC, TCCR, TCSM, TCLWD, TCCX, TCCXQ, TCZRS, TCBENCH, TCCRBENCH, TCEDGEVIS, MC, MC3-03X, MCSM, MCZR, MZMT12X, ENMT, ENMP, ENHR, ENVF
COE-012-x-USB-020-yy-C	1/3"	1280 x 960	1.2	3.75pix	RJ33J4CA3DE	CCD	Global	M/C	USB 3.0	30	C	mono Glass, color Infrared cut	TC, TCCR, TCSM, TCLWD, TCCX, TCCXQ, TCZRS, TCBENCH, TCCRBENCH, TCEDGEVIS, PC, PCCD, PCHI, PCBP, PCPW, MC, MC3-03X, MCSM, MCZR, MZMT12X, ENMT, ENMP, ENHR, ENVF
COE-004-x-USB-021-yy-C	1/2.9"	720 x 540	0.4	6.9pix	IMX287	CMOS	Global	M/C	USB 3.0	520	C	mono Glass, color Infrared cut	
COE-016-x-USB-021-yy-C	1/2.9"	1456 x 1088	1.5	3.45pix	IMX273	CMOS	Global	M/C	USB 3.0	165	C	mono Glass, color Infrared cut	
COE-050-x-USB-023-yy-C	1/2.5"	2592 x 1944	5	2.2pix	AR0521	CMOS	Rolling	M/C	USB 3.0	30	C	mono Glass, color Infrared cut	
COE-013-x-USB-030-yy-C	1/2"	1280 x 1024	1.3	4.8pix	Python1300	CMOS	Global	M/C	USB 3.0	170	C	mono Glass, color Infrared cut	
COE-063-x-USB-040-yy-C	1/1.8"	3096 x 2080	6.4	2.4pix	IMX178	CMOS	Rolling	M/C	USB 3.0	40	C	mono Glass, color Infrared cut	TC, TCCR, TCSM, TCLWD, TCCX, TCCXQ, TCZRS, TCBENCH, TCCRBENCH, TCEDGEVIS, PC, PCCD, PCHI, PCBP, PCPW, PCMP, TCCAGE, MC, MC3-03X, MCSM, MCZR, MZMT12X, ENMT, ENMP, ENHR, ENVF
COE-050-x-USB-050-yy-C-A	2/3"	2448x2048	5	3.45pix	IMX250	CMOS	Global	M/C	USB 3.0	75	C	mono Glass, color Infrared cut	TC, TCCR, TCSM, TCLWD, TCCX, TCCXQ, TCZRS, TCBENCH, TCCRBENCH, TCEDGEVIS, PC, PCCD, PCHI, PCPW, PCMP, TCCAGE, MC, MC3-03X, MCSM, MCZR, MZMT12X, ENMT, ENMP, ENHR, ENVF
COE-050-x-USB-050-yy-C	2/3"	2464 x 2056	5	3.45pix	IMX264	CMOS	Global	M/C	USB 3.0	35	C	mono Glass, color Infrared cut	
COE-023-x-USB-060-yy-C	1/1.2"	1936 x 1216	2.3	5.86pix	IMX249	CMOS	Global	M/C	USB 3.0	40	C	mono Glass, color Infrared cut	TC, TCCR, TCSM, TCLWD, TCCX, TCCXQ, TCZRS, TCBENCH, TCCRBENCH, TCEDGEVIS, MC, MC3-03X, MCSM, MCZR, MZMT12X, ENMT, ENMP, ENHR, ENVF
COE-053-x-USB-070-yy-C	1"	2592 x 2048	5.3	4.8pix	Python5000	CMOS	Global	M/C	USB 3.0	60	C	mono Glass, color Infrared cut	TC, TCCR, TCSM, TCLWD, TCCX, TCCXQ, TCZRS, TCBENCH, TCCRBENCH, TCEDGEVIS, MC, MC3-03X, MCSM, MCZR, MZMT12X, ENMT, ENMP, ENHR, ENVF
COE-089-x-USB-070-yy-C	1"	4112 x 2176	8.9	3.45pix	IMX267	CMOS	Global	M/C	USB 3.0	30	C	mono Glass, color Infrared cut	TC, TCCR, TCSM, TCLWD, TCCX, TCCXQ, TCZRS, TCBENCH, TCCRBENCH, TCEDGEVIS, PC, PCCD, PCHI, PCPW, PCMP, TCCAGE, MC, MC3-03X, MCSM, MCZR, MZMT12X, ENMT, ENMP, ENHR, ENVF
COE-123-x-USB-080-yy-C	1.1"	4112 x 3008	12.3	3.45pix	IMX304	CMOS	Global	M/C	USB 3.0	20	C	mono Glass, color Infrared cut	TC, TCCR, TCSM, TCLWD, TCCX, TCCXQ, TCZRS, TCBENCH, TCCRBENCH, TCEDGEVIS, MC, MC3-03X, MCSM, MCZR, MZMT12X, ENMT, ENMP, ENHR, ENVF

¹ Frame rate relative to the monochrome version.

Ordering information:

How to order

X M = Monochrome
C = Color

YY Glass/Infrared cut filter supported

- Alle COE-U are Power over USB3.0 supported.
- Alle COE-U are C-mount.
- Specific product datasheet and user manual are available at www.opto-e.com

mvBlueFOX3-2 series

USB 3.0 GenICam® cameras with Sony Pregius CMOS sensors



* RT



KEY ADVANTAGES

High quality sensors

New SONY Pregius CMOS Global shutter sensors provide high quality images.

Frame Rate up to 164 Hz

High frame rate ideal for high speed applications.

256 MB RAM

Internal memory up to 256 MB guarantees no image loss.

Large FPGA on board

Reduces CPU load and allows more features to be added.

Full GenICam® compliance

User friendly GenICam® compliant SDK package provides more flexibility to Vision Systems.

mvBlueFOX3-2 series includes USB3 Vision® cameras equipped with the latest SONY Pregius Global Shutter CMOS Sensors, which deliver high resolution, high frame rate, low noise and excellent Price / Quality Ratio.

Opto Engineering® selected a set of cameras that are tailored for industrial applications, based on high image quality, compactness, robustness and ease of use. Large RAM and FPGA on board provide quick and reliable image data processing without overloading your CPU, also giving you the opportunity to easily implement custom

features. Extra features like Burst Mode, Counter/Timers, and Color Processing can simplify your multi-function vision system configuration in a snap!

The fully GenICam® compliant mvIMPACT SDK allows the vision system to be more flexible. Complete documentation of the SDK gives you access to many special camera features that could simplify your vision system development. The driver of the mvBlueFOX3-w cameras is supported by a wide range of third-party software packages, Fabimage, e.g. Halcon, Matlab, Labview, etc.

Part number	Sensor specifications							Camera specifications		Compatibility
	Image sensor format	Resolution (pixel)	Mpixel	Pixel size (µm)	Sensor name ²	Sensor type	Shutter type	Interface	Frame rate (Hz)	
RT-mvBF3-2004	1/2.9"	728 x 544	0.40	6.90	IMX287	CMOS	Global	USB 3.0	436	TC, TCCR, TCSM, TCLWD, TCCX, TCCXQ, TCZRS, TCBENCH, TCCRBENCH, TCEDGEVIS, PC, PCCD, PCHI, PCBP, PCPW, PCMP, TCCAGE, MC, MC3-03X, MCSM, MCZR, MZMT12X, ENMT, ENMP, ENHR, ENVF
RT-mvBF3-2016	1/2.9"	1456 x 1088	1.58	3.45	IMX273	CMOS	Global	USB 3.0	226.1	
RT-mvBF3-2032a	1/1.8"	2064 x 1544	3.19	3.45	IMX265	CMOS	Global	USB 3.0	55	
RT-mvBF3-2032	1/1.8"	2064 x 1544	3.19	3.45	IMX252	CMOS	Global	USB 3.0	123.5 / 119 ¹	
RT-mvBF3-2064 ³	1/1.8"	3096 x 2080	6.44	2.40	IMX178	CMOS	Rolling	USB 3.0	50.1	
RT-mvBF3-2051a	2/3"	2464 x 2056	5.07	3.45	IMX264	CMOS	Global	USB 3.0	35.6	
RT-mvBF3-2051	2/3"	2464 x 2056	5.07	3.45	IMX250	CMOS	Global	USB 3.0	80.5 / 75 ¹	
RT-mvBF3-2024a	1/1.2"	1936 x 1216	2.35	5.86	IMX249	CMOS	Global	USB 3.0	41	
RT-mvBF3-2024	1/1.2"	1936 x 1216	2.35	5.86	IMX174	CMOS	Global	USB 3.0	164 / 161 ¹	
RT-mvBF3-2089a	1"	4112 x 2176	8.95	3.45	IMX267	CMOS	Global	USB 3.0	32.2	
RT-mvBF3-2089	1"	4112 x 2176	8.95	3.45	IMX255	CMOS	Global	USB 3.0	47.5	
RT-mvBF3-2124a	1.1"	4112 x 3008	12.37	3.45	IMX304	CMOS	Global	USB 3.0	23.2	
RT-mvBF3-2124	1.1"	4112 x 3008	12.37	3.45	IMX253	CMOS	Global	USB 3.0	34.6 / 30.7 ¹	

¹ Burst mode / streaming. Burst mode buffers the acquired images and decouples the acquisition from the image output. That way, you can use the sensor's maximum frame rate independently of the available bandwidth.

² EMVA1288 measurement data of gray scale version.

³ SONY Starvis CMOS Rolling Shutter sensor.

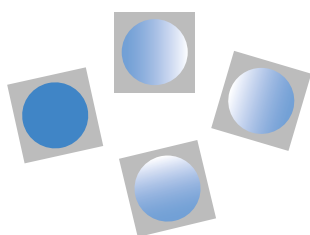
Ordering information

- All cameras are available in monochrome or color version at no extra cost.
- IR cut filter integrated by default. Other filters can be integrated on request at no extra cost.
- I/O port available on request.
- Cameras are available in OEM board version.



Suitable filters for your lighting situation or environmental condition.

Choose between daylight cut (Cold Mirror), IR cut (Hot Mirror) or glass (without filter).



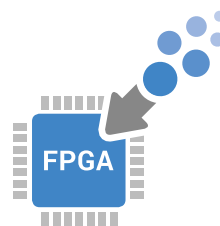
For counting and triggering events, counters are a handy feature for many applications.

The counter allows you to generate variable output signals, control illumination systems, synchronize multiple cameras, and a lot more.



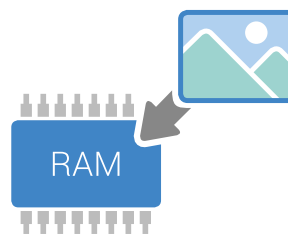
Large camera FPGA reduces CPU load of your host system.

Extra FPGA space allows more features and modifications to be implemented. Custom features can also be supplied.



With the internal image memory, no image will be lost again.

The internal memory buffers images and enables useful features like Record / Playback, Pre-trigger as well as sequence recordings.



Mechanical specifications

Dimension (mm)	39.8 x 39.8 x 37.7
Weight (g)	94
Mount	C

Electrical specifications

Interface	USB 3.0 (5 GB/s)	
Connectors	USB 3.0 Micro-B, lockable Hirose Type 12 Pin, lockable (optional)	
RAM	256 MB	
I/O interface (optional)	2 inputs (opto-isolated) 4 outputs (opto-isolated)	3-24V +/-1V up to 24V, 7mA
Power consumption (W)	< 4.5	
Operating temperature (°C)	0 to 45	
Operating humidity (%RH)	30 to 80	
Storage temperature (°C)	-20 to 60	
Storage humidity (%RH)	20 to 90	

SPECIAL FEATURES

- Burst mode
- On board color processing
- Additional information via data stream
- Sequence recording using parameter sets
- Event notifications

FULL RANGE OF COMPATIBLE ACCESSORIES



CBUSB3001
CBGPIO001

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