

Special Features of the ECO / ECO² Series

- > Progressive Scan CCD sensors
- Area of Interest modes (AOI) > 8/12 Bit video data stream (14 Bit ADC)
- > 64 MB frame buffer

CCD C/CS

CCD C/CS 20

CCD C/CS

- > White balance for color versions (one push or manual)
- Wide range Power conditions: 10 25 V DC
- Sequence-Shutter and enhanced Strobe-Functionality > Up to 4 x direct drive and control of LED lighting
- > Dimensions [mm] ECO: 38 x 38 x 33, ECO²: 38 x 38 x 45

ECO Series	[MP]	Resolution [Pixel]	Format	Sensor	Pixel [µm²]	Architecture	Mount	max. Frame Rate [fps]	IP 67
eco618	0.3	656 x 492	1/4"	Sony ICX618	5.6	CCD	C/CS	155	\odot
eco424	0.3	656 x 492	1/3"	Sony ICX424	7.4	CCD	C/CS	124	O
eco414	0.3	656 x 492	1/2"	Sony ICX414	9.9	CCD	C/CS	125	O
eco415	0.4	780 x 580	1/2"	Sony ICX415	8.3	CCD	C/CS	86	O
eco204	8.0	1,024 x 776	1/3"	Sony ICX204	4.65	CCD	C/CS	47	O
eco445	1.3	1,296 x 964	1/3"	Sony ICX445	3.75	CCD	C/CS	30	O
eco267	1.4	1,392 x 1,040	1/2"	Sony ICX267	4.65	CCD	C/CS	25	O
eco285	1.4	1,392 x 1,040	2/3"	Sony IC285	6.45	CCD	C	34	O

PoE versions	on	request	
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Environment

eco274

ECO and ECO² GigE Vision Cameras

Unsurpassed flexibility with great performance and affordability. This characterizes

the ECO and ECO² series best. You will find all popular CCD-Sensors from ON

Semi and Sony in the ECO series. These cameras are available in more than

100 different versions with resolutions from VGA up to 12 megapixel. ECO

series cameras are designed to achieve high frame rates while maintaining

footprint. Supporting the standards of GigE Vision™ and GenlCam™ the ECO

1,600 x 1,236 1/1.8" Sony ICX274

eco625 5 2,448 x 2,050 2/3" Sony ICX625 3.45

2/3" Sony ICX655

series opens up new dimensions for integration into your application SW-

excellent signal-to-noise ratios and at the same time providing a small

Pot version	iis oii ieq	uesi						GigE	BlackLine
ECO ² Series	[MP]	Resolution [Pixel]	Format	Sensor	Pixel [µm²]	Architecture	Mount	max. Frame Rate [fps]	IP 67
eco1050	1	1,024 x 1,024	1/2"	ON-Semi KAI-01050	5.5	CCD	C	56.1	\odot
eco2050	2	1,600 x 1,200	2/3"	ON-Semi KAI-02050	5.5	CCD	C	33.2	⊘
eco2150	2	1,920 x 1,080	2/3"	ON-Semi KAI-02150	5.5	CCD	C	31.7	⊘
eco674	2.8	1,920 x 1,460	1/2"	Sony ICX674	4.54	CCD	C	19.9	-
eco4050	4	2,336 x 1,752	1"	ON-Semi KAI-04050	5.5	CCD	C	16.8	\odot
eco695	6	2,752 x 2,204	1"	Sony ICX695	4.54	CCD	C	10.1	
eco815	9	3,360 x 2,712	1"	Sony ICX815	3.69	CCD	C	7	
eco834	12	4,224 x 2,838	1"	Sony ICX834	3.1	CCD	(5.5	



EVO GigE Vision Cameras

With their cutting-edge electronics design and the use of quad-tap CCD- or CMOS sensors the EVO cameras offer very high frame rates at extremely low noise levels. Sophisticated processing of the critical analog CCD video signal by Correlated Double Sampling (CDS) leads to significant noise reduction. Straight forward conversion into digital signals results in an excellent signal-to-noise ratio. Additionally, the integration of intelligent processing offers various modes for exposure time and trigger control settings. The compact housing allows installation even in limited space conditions.

EVO Camera Link Cameras

High performance thanks to mature sensor knowledge. Precisely this allows in the Camera Link versions of the EVO, the extra frame rate – often critical to your advantage. There is a suitable model for each task. Identical and easy integration into your system and maximum camera technology in the smallest package. This was our goal in the development of the EVO.

Special Features of the EVO GigE Series:

- > Dual GigE Vision Data-Interface
- > Cable lengths up to 100 meters are possible
- > Any desired AOI (Area Of Interest) possible
- > SDK for Windows (32/64 bit) and Linux available > 2 x direct drive and control of LED lighting

- Dimensions [mm]: 50 x 50 x 47

Special Features of the EVO Camera Link Series:

- > 1, 2, 4, 8 and 12 megapixel, progressive scan sensors
- > Camera Link Medium configuration (2 connectors) > C-mount and M42 lens mount options
- > Highest frame rate
- > 128 MB frame buffer
- Dimensions [mm]: 50 x 50 x 47

								GigE	Camera Link
Model	[MP]	Resolution [Pixel]	Format	Sensor	Pixel [µm²]	Architecture	Mount	max. Frame	Rate [fps]
evo1050	1	1,024 x 1,024	1/2"	ON-Semi KAI-01050	5.5	CCD	C	-	180
evo2050	2	1,600 x 1,200	2/3"	ON-Semi KAI-02050	5.5	CCD	C	81.8	106
evo2150	2	1,920 x 1,080	2/3"	ON-Semi KAI-02150	5.5	CCD	C	78	100
evo4050	4	2,336 x 1,752	1"	ON-Semi KAI-04050	5.5	CCD	C	41.6	52
evo4070	4	2,048 x 2,048	21.43 mm	ON-Semi KAI-04070	7.4	CCD	M42	39.3	-
evo8051	8	3,296 x 2,472	4/3"	ON-Semi KAI-08051	5.5	CCD	M42	21.8	26.8
evo 12040	12	4 000 x 3 000	4/3"	ON-Semi KAC-12040	4 7	CMOS	M42	15	_



The EXO Concept

The EXO series is the perfect choice for system integrators with ever changing tasks. Simple and scalable integration with maximum functionality was our objective. The aluminum unibody housing is precisely machined with excellent thermal and mechanical properties and creates the platform for a complete offering of sensors and interfaces. A wide range of the latest CMOS and CCD sensors from SONY, On Semiconductor and CMOSIS makes it easy to select the right camera for virtually any application. On the interface side the choices are free between GigE Vision, Camera Link Base or USB3.0.

All SVCam models incorporate the same full set of features - a highlight is the ability to control and power independent 4 LED lights - all 4 lights individually controlled by the camera.

EXO Camera Link Cameras

EXO Camera Link models let you maintain the existing and proven infrastructure for years to come, while making use of the newest range of image sensors. The serialized interface has gained wide popularity and acceptance thanks to its high bandwidth. The EXO series was the first Camera Link model to include features such as 4 1/0 strobe controller and look up table.

- > ConvCam Software control > 256 MB frame buffer

1) With Tap Configuration 1X3-1Y it is possible to increase the framrate [fps] by 50%. The EXO 174 CL for example can make up to 100 fps.





Special Features of the EXO Series:

Solution Should Shou

> 2.3 to 20 megapixel

logical trigger functions

(depending on sensor)

GenICam compliant

> Sensors from Sony, ON Semi and CMOSIS

> 4 x direct drive and control of LED lightning

> Dimensions [mm]: 50 x 50 x 43 or 50

> GigE Vision, Camera Link and USB3 supported



EXO GigE Vision Cameras

EXO series cameras with GigE Vision interface gives your applications an extreme scalability. Quick and easy hardware interchangeability results in shorter design cycles and reduced development costs. Further value is added to your application by a virtually limitless feature set. As an example, the 4 I/O LED driver with standardized software control.

- Cost effective
- > Wide range of "off the shelf" industrial-standard plugs and cables
- > Data transfer rate up to 120 MB/sec > Up to 100 m range without additional switch
- > Wide range of applications in image processing
- Remote service capability
- 256 MB frame buffer







EXO USB3 Vision Cameras

The EXO is one of the most flexible and scalable cameras for the industrial market segment. The USB3 Vision interface is easy to integrate in your system, with a data rate up to effective 350 MB/sec. The time to market for applications is shortened, reducing costs even further. Power and trigger the camera through a single interface connection and reduce cable complexity. EXO provides Plug-and-play capability for the whole range of 2.3 to 12 MP resolution.

- > Up to 350 MB/sec effective transfer rate
- > Leverages existing infrastructure for cables and connectors
- > Power camera with up to 4.5 W
- > Cost effective/easy implementation and interfacing
- > 256 MB frame buffer







								GigE	Camera Link	USB3	
Nodel .	[MP]	Resolution [Pixel]	Format	Sensor	Pixel [µm²]	Architecture	Mount	max.	Frame Rate [fp	os]	
xo174	2.3	1,920 x 1,200	1/1.2"	Sony IMX174	5.86	CMOS	C	49	70 ¹⁾	160	
xo249	2.3	1,920 x 1,200	1/1.2"	Sony IMX249	5.86	CMOS	C	31	-	31	
xo252	3.2	2,048 x 1,536	1/1.8"	Sony IMX252	3.45	CMOS	C	-	52 1)	115	
xo265	3.2	2,048 x 1,536	1/1.8"	Sony IMX265	3.45	CMOS	C	34	-	55	
xo4000**	4	2,048 x 2,048	1"	CMOSIS CMV4000	5.5	CMOS	C	27	40	74	
xo273	4.5	1,440 x 1,080	1/2.9"	Sony IMX273	3.45	CMOS	C	77	-	- (new
xo250	5	2,448 x 2,048	2/3"	Sony IMX250	3.45	CMOS	C	23	32 1)	72	
xo264	5	2,448 x 2,048	2/3"	Sony IMX264	3.45	CMOS	C	23	-	35	
xo694	6	2,752 x 2,200	1"	Sony ICX694	4.54	CCD	C	-	25	25	
xo814	9	3,360 x 2,712	1"	Sony ICX814	3.69	CCD	C	-	18	18	
xo255	9	4,096 x 2,160	1"	Sony IMX255	3.45	CMOS	C	-	-	42	
xo267	9	4,096 x 2,160	1"	Sony IMX267	3.45	CMOS	C	12	18 1)	28	
xo253	12	4,096 x 3,000	1.1"	Sony IMX253	3.45	CMOS	C	-	-	30	
xo304	12	4,096 x 3,000	1.1"	Sony IMX304	3.45	CMOS	C	9	13 1)	23	
xo183	20	5,496 x 3,672	1"	Sony IMX183	2.4	CMOS	C	5	12	17	new
										,	· /

1) up to 50% higher frame rates with certain frame grabber and specific tap configuration

* preliminary ** longer delivery times may occure – ask your local distributor



These cameras combine the outstanding features of the EVO and EXO series with the advantages of the Micro-Four-Thirds lens standard. By allowing full user control of zoom, focus and aperture, the lens becomes an integrated part of the camera. The Micro-Fourstandard, based on a bayonet mount, is widely used for compact cameras and is 100% are on the way, making new and previously unthinkable solutions reality.

Tracer GigE Vision Cameras

Thirds lens system was pioneered by increasing demands in digital still photography. This optimized for digital image capture. There is a wide selection of suitable lenses, and more

Special Features of the Tracer Series:

- > Micro-Four-Thirds bayonet mount
- > Fast user control of zoom, aperture and focus
- > Lens settings controlled by Ethernet interface
- > Data interface: Dual GigE (EVO) / GigE (EXO) User selectable AOI (Area Of Interest)
- > SDK for Windows (32/64bit) and Linux available
- > frame buffer: 64 MB (EXO) / 128 MB (EVO)
- > Dimensions EVO [mm]: 58 x 58 x 59

>	Dimensions EXO	[mm]:	58 x	58	X	4

te [fps]
te

Model	[MP]	Resolution [Pixel]	Format	Sensor	Pixel [µm²]	Architecture	Mount	max. Frame Rate [fps]
evo2050 TR	2	1,600 x 1,200	2/3"	ON-Semi KAI-02050	5.5	CCD	MFT	81.8
evo2150 TR	2	1,920 x 1,080	2/3"	ON-Semi KAI-02150	5.5	CCD	MFT	78
evo4050 TR	4	2,336 x 1,752	1"	ON-Semi KAI-04050	5.5	CCD	MFT	41.6
evo8051 TR	8	3,296 x 2,472	4/3"	ON-Semi KAI-08051	5.5	CCD	MFT	21.8



HR GigE Vision Cameras

The GigE cameras of the HR series impress with their housing concept, the wide-range lenses and the unique picture quality. Thanks to the dual GiaE connection with the 4-Tap Version it is possible to achieve a maximum data rate of up to 240 MBvte/s.

A further advantage is the reliable, cost-effective transmission of the image data over a distance of 100 m with standard network technology. The GigE Vision and GenlCam standards ensure rapid integration into the application software.

HR Camera Link Cameras

Our sophisticated sensor knowledge enables the Camera Link versions of the HR series the fast and direct connection to the sensor - often critical to your advantage. Available resolutions are 11 to 29 megapixel with the best of the CCD and new CMOS technology from ON Semi. 2-tap or 4-tap and newest high speed CMOS sensors are optimally supported with Camera Link base, medium or full standard.

HR CoaXPress Cameras

With CoaXPress 25 GBit/s can be transferred. This makes CXP the alternative to GigE Vision including frame rates comparable to Camera Link.

Referring to the new generation of high speed CMOS sensors from ON Semi with up to 85 frames per second at 25 megapixel CoaXPress is supported by the hr25000. The high dynamic range with a further improved signal to noise ratio makes these sensors two of the fastest high class CMOS sensors available for industrial customers.

[MP] Resolution [pixel] Format

16 4,872 x 3,248 43.3 mm ON-Semi KAI-16000

Special Features of the HR GigE Series:

- > Dual GigE Vision data interface > GigE Vision and GenIcam standard compliant
- > Two parallel ethernet connections enable increased data rates > Cable lengths up to 100 meters are possible
- > AOI (Area of Interest)
- > SDK for Windows (32/64 bit) and Linux available
- > 128 MB frame buffer > Dimensions [mm]: 70 x 71 x 55

Special Features of the HR Camera Link and CXP Series:

- > Particle Image Velocimetry (PIV-Mode) > (optional) Power over Camera Link (PoCL)
- > 256 MB frame buffer (HR25 CXP: 512 MB, CL: 256 MB)

GigE Camera Link CoaXPress

max. Frame Rate [fps]

> Dimensions [mm]: 70 x 71 x 55

Pixel [µm²] Architecture Mount

CCD M58/F

11 4,008 x 2,672 43.3 mm ON-Semi KAI-11002 9 CCD M58/F 6.1 - -

hr25000 25 5,120 x 5,120 32.5 mm ON-Semi Python 25K 4.5 CMOS M58/F - 31 80

hr29050 29 6,576 x 4,384 43.47 mm ON-Semi KAI-29050 5.5 CCD M58/F 6.2 5.9 -

HR 120 Camera Link or CXP Camera

"high resolution" in machine vision.

* preliminary

Machine vision inspection very often focuses on details. Resolution is the magic

word here. With a resolution of 120 megapixel, the hr120 reveals even the smallest

detail. Designed for demanding high-end imaging applications, the hr120 features an

unprecedented combination of resolution and outstanding image quality that redefines

The CANON APS-H rolling shutter sensor with square-shaped 2.2µm pixels delivers up to 6.7 (Camera Link) or 9.4 (CXP) images per second at a maximum resolution. The relatively large pixels for this resolution provide an impressively noise-free image. The M58 mount ensures a wide selection of suitable high-quality lenses for just about every

conceivable application. The camera comes with the usual features such as lookup tables, areas of interest, offset, flipping, binning etc. These are supported by defect pixel correction and shading correction for lenses. As a high-end machine vision camera, it exhibits an outstanding thermal design with passive cooling.

With its resolution of 13,272 x 9,176 pixel, it is frequently no longer necessary to stitch images from multiple cameras. The hr120 is an extremely high-resolution camera in a compact body packed full of professional features.



Special Features of the HR120 Series

- > Resolution 13,272 x 9,176 pixel (6.7 fps / 9.4 fps)
- > Sensor: Canon CMOS sensor, 2.2µm pixel size
- > Trigger and Input: electrical & optical trigger, RS232 > Output: 4 (integrated 4-channel light controller)
- > Lens mount: M58x0.75 / Canon / Moritex
- > Interface: Camera Link Full / Deca or CoaXPress





SHR Camera Link Cameras

Enhance existing Camera Link architectures seamlessly, the SHR significantly boost bandwidth capability with the Camera Link 80-bit Deca upgrade.

Employing as many as 16 taps, the sensor delivers its 47 megapixel in the finest CCD quality. The unique tap balancing, devised by SVS-Vistek, is renowned for being among the best - worldwide. It ensures effortless integration of the camera in your application

SHR CoaXPress Cameras

At Seven full frames of 47 megapixel per second, the SHR with CXP is expanding horizons for quality control. CoaXPress is among the fastest interface standards commonly used in industrial machine vision and therefore ideal for multi-tap sensors. The well-established 1/O Concept, found in all SVS-Vistek camera series, warrants seamless integration of the SHR CXP in existing system architectures.

Special Features of the CoaXPress SHR Series:

> Power over Camera Link (PoCL)

Special Features of the Camera Link SHR Series:

> High framerate

> Pixel Clock Setting

> 256 MB frame buffer

> 512 MB frame buffer

								Camera Link	CoaXPress
Model	[MP]	Resolution [Pixel]	Format	Sensor	Pixel [µm²]	Architecture	Mount	max. Frame	Rate [fps]
shr47051	47	8,856 x 5,280	56.7 mm	ON-Semi KAI-47051	5.5	CCD	M72	7	7





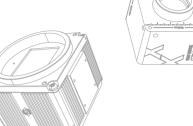
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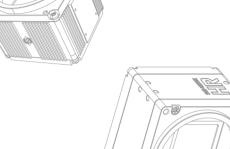
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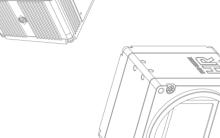


















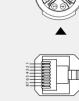




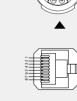


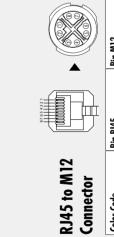


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≥ ວ	M12 - I/O Connector	100 100 100 100 100 100 100 100 100 100
Ë	Pin Color Code	Signal
_	brown	V IN+ (10-25V)
2	blue	V IN- (GND)
က	white	RxD (RS232) not available for PoE versions
4	green	TxD (RS232) not available for PbE versions
2	pink	IN 1 (0-24 V)
9	yellow	IN 2 (0-24 V)
7	black	OUT 1 (open Drain max. 24 V, 0.3 A)
∞	grey	OUT 2 (open Drain max 24 V, 0.3 A)
6	red	IN 3+ (RS422)
2	violet	IN 3 — (RS422)
=	grey / pink	0UT 3+(RS422)
12	red / blue	OUT 3 — (RS422)

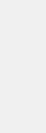


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12, EVO, HR (CL medium, GigE only)	2, EVO, HR (CL medium, GigE only) Signal EXO, HR (CL Deco, CXP), SHR	Signal
	VIN- (GND)	-NI V
(25)	VIN+ (10-25V)	+ NI V
) not available for PoE versions	IN 4 RxD (RS232)	not con
) not available for PoE versions	0UT 4 TxD (RS232)	not con
(11)	IN 1 (0-24 V)	IN I
14)	IN 2 $(0-24 \text{ V})$	IN 2
rain)	OUT 1 (open drain)	0UT 1
rain)	OUT 2 (open drain)	OUT 2 (
)	IN 3+ (opto IN +)	IN 3 (0
)	IN 3 - (opto IN -)	IN 4 (0
2)	OUT 3 (open drain)	OUT 3 (









SVS-VISTEK



Feature List

2.3 to 20 Mpixel
CMOS and CCD
Sony, ON Semi and CMOSIS
1, 2 and 4 tap / 8 than. sensors







Engineering and Production

> Excellent optical precision

> Precise and rugged long life mechanical design

> Advanced temperature management

> Industrial protection class up to IP67

Solid I/O Concept

Hirose and industrial M12 connectors

Configurable I/O matrix

Up to 4 x power PWM OUT max 3 A

Up to 4 x trigger IN, TIL-24V

Up to 2 x optical IN

RS232 or RS422 IN/OUT

Unique Features

> PWM power drives for LED li;

> Programmable sequencer for

> Programmable 1/0 logic (PL)

> Programmable (BST)

> Safe trigger (STT)

> Dynamic lens control (MFT)

LED

4 INTEGRATED
LED-CONTROLLERS

SEQ STT BST PLC
NEGRIED SHETRIGER BISTIMODY DOGCOMBOL
TECHNOLOGY TECHNOLOGY

Camera Firmware Features

Camera Hardware Features

strobe controller – in-camera LED light driver/controller, up to 3 A – easy synchronization	
lual exposure and strobe out	
caler for trigger input	
122 differential signal	
vic ess	strate controller - In-Califera LED light arriver/controller, up to 3 A - easy synchronization sequencer - up 16 programmable intervals with individual exposure and strobe out programmable logic I/O functionality with timers PWM - high frequency pulse width modulation signal safe through high-low filter, debouncer and prescaler for trigger input versatile I/O concept: 24V signal levels - RS232 / RS422 differential signal



S O N O I S I V Power over Ethernet

















