

10GIGE & 25GIGE

CAMERAS
Speed is Everything

25GIGE
BOLT

25GIGE
ACCEL

10GIGE
HR-HT SERIES

10GIGE
PACE



 **emergent**
vision technologies



About Us

EVT was founded in 2007 in Vancouver, Canada. We bring together over 40+ years of imaging experience ranging from life science, security and machine vision/industrial markets. We are the first providers of area scan and line scan cameras based with the 10 Gigabit Ethernet (10GigE) interface and now the first company to provide 25 Gigabit (25GigE) industrial cameras. 10GigE and 25GigE matches or exceeds the bandwidth of even the most advanced interfaces including USB 3.0, CoaXPress and Camera Link. At the same time the costs are low and the technology is fully developed since any modern IT network utilizes the 10GigE and 25GigE standard for broad band data

transmission. The Gen<i>Cam™, GigEVision®, and GenTL standards make the integration with all major software libraries as easy as can be. In close collaboration with our global network of highly qualified partners and distributors, we offer individual consulting and support for your applications. Our online Knowledge Base provides various white papers, application notes and other resources to accelerate your system specification and development. Please contact us to find out what we can do for you!

Applications & Solutions

Our current cameras range from 2 to 50 megapixels and 338 to 23 frames per second (fps) at full resolution (over 1000 fps at lower resolutions). We provide best-in-class and versatile solutions for a large variety of applications including display or solar panel inspection,

pick-and-place machines, vision guided robots, railway inspection, highway monitoring, sports broadcast applications, virtual reality, golf swing analysis and more.

ALL ABOUT 10GIGE

What is 10GigE?

10GigE (a.k.a. 10 Gigabit Ethernet) is the successor to 1GigE (1 Gigabit Ethernet) which is the leading interface for machine vision applications. 10GigE, as the successor, provides all the same benefits of 1GigE but with a tenfold increase in data-rate which leads to a ten-fold increase in frame rate. 10GigE, as with 1GigE, is an industry standard which has been around for years and is managed/produced by the IEEE 802.3 working group. The standard is used in applications such as telecom, data communications industrial, military, etc., and now we leverage the benefits of this globally accepted cross industry technology for machine vision applications.

Why 10GigE for my application?

- ▶ ultra high data/frame rates
- ▶ a large number of accessory & cabling options
- ▶ network support and accurate multi-camera synchronization
- ▶ Low CPU overhead, low latency, low jitter using MVA
- ▶ Industry acceptance due IEEE and AIA standardization

What is the bandwidth of 10GigE?

The maximum bandwidth available for 10GigE is 10Gbps or 1,250 Mbytes/s. The usable bandwidth is around 9.5Gbps or 1,180 Mbytes/s.



Does GigE Vision work for 10GigE?

Yes. GigE Vision (the machine vision specific interface standard) regardless of its version supports Emergent 10GigE cameras. The later versions add some additional 10GigE specific elements which are not critical for the operation of Emergent 10GigE cameras with various GigE Vision compliant software such as NI Labview, Cognex VisionPro, MVTec Halcon, Norpix streamPix, etc.

What are the cable options and max cable lengths of 10GigE?

The two main connector options are SFP+ and RJ45. RJ45 is a good option for shorter cable lengths since the power consumption of such a solution can add an additional 2W of power for running the full 100m which becomes a bit of a problem as we attempt to make cameras more compact. SFP+ is the most flexible option and is conscious of keeping power consumption to a minimum. Using the SFP+ interface provides primarily three options which cover the cable length requirements of all applications. The first and least expensive option is Direct attach which is a copper based passive solution and the cable lengths for these single piece cables range from 1m to 10m. The second option utilizes SFP+ multi-mode fiber modules/transceivers and LC-LC multi-mode fiber cables and the cable lengths for this three-piece cable range from 1m to 300m. The third option utilizes SFP+ single-mode fiber modules/transceivers and LC-LC single-mode fiber cables and the cable lengths for this three-piece cable range from 1m to 10Km.

10GigE NIC Cards and MVA for 10GigE.

Emergent and Myricom Inc. have partnered to provide an optimal solution for Machine Vision applications. Myricom supplies their NICs pre-programmed with MVA and are available direct from Emergent. We have 3 NIC options to choose from for our HR Series, Single NICs, Dual NIC (2 cameras per card), and Dual SYNC NICs (2 cameras per card that can be sync'd to sub 1 micro second) and 2 NIC options for our HT Series, Single NICs and Dual NICs. By using these cards in conjunction with the MVA license that comes with them, customers can expect to see:

- ▶ Extremely low CPU utilization (less than 1% single CPU core overhead for a 9Gbps video stream)
- ▶ Extremely low latency
- ▶ Extremely low jitter



How does 10GigE compare with other interfaces?

Emergent 10GigE cameras, coupled with Myricom's MVA, equals or out-performs other interfaces in every technical category and its price performance is in line with the best. With MVA, all the shortcomings associated with 1GigE w.r.t. CPU utilization, latency and jitter are obliterated. Industry acceptance is very good and will only get better.

What software can be used with 10GigE cameras?

Generally, any GigEVision compatible software should work with Emergent cameras by virtue of Emergent cameras being certified as GigEVision compliant by the AIA. We have tested with a few such 3rd party software such as NI Vision Acquisition Toolbox, MVTec Halcon, Norpix StreamPix 6 and Cognex VisionPro. Emergent also offers free software with a camera purchase: eCapture is our free viewer software, and eSDK is our C++ SDK for easy application development.



NEW 50 MP Camera



The brand new 50MP cameras HR-50000 & HT50000, are setting a new standard in advanced imaging technologies for applications ranging from broadcast sports to high speed inspection. At full resolution (7920x6004), you get 23 frames per second at full resolution. Like all Emergent Vision cameras, the HR-50000 & HT-50000 series offers various triggering modes for the precise synchronization at $<1\mu s$. This combination is ideal for any application needing to see the details at real time imaging speeds. Overall, the HR-50000 & HT-50000 deliver the resolution you need at unmatched speeds.

HR Series

The HR Series cameras are our 10GigE SFP+ product line with camera options between 2MP-50MP. These cameras come equipped with SFP+ Connections that can be used with our short length direct attached copper cables or long range fiber with transceivers. What makes this line so attractive, is if a customer needs to run those long cable lengths, there is no need for expensive fiber converters. With fiber, the cable lengths can go up to 10KM.



HR FAMILY SPECIFIC

Shutter	Global
Bit Depth	8, 10 or 12Bit*
GPIO	2 in, 4 out
Interface	SFP+ 10GigE

12bit available for Sony Models

HT Series

The HT Series cameras are our 10GBaseT RJ45 product line with camera options between 2MP-50MP. These cameras are smaller in physical size and come equipped with CAT6A 10GBaseT Connections. They have the more familiar ethernet connection used in GigE but 10x the speed. Cable lengths can go up to 100M.



HT FAMILY SPECIFIC

Shutter	Global
Bit Depth	8, 10 or 12Bit*
GPIO	2 in, 4 out
Interface	CAT6A 10GBaseT



EVT is excited to announce the addition of Sony Pregius Global Shutter CMOS Sensors to our SFP+ and 10GBaseT cameras lines. As the first 10GigE industrial digital camera series in the world, our HR and HT cameras obtain their high performance from these industrial CMOS sensors with Global Shutter technology in combination with the cross-industry standard 10 Gigabit Ethernet (10GigE) interface.

The Sony Pregius CMOS Global Shutter Sensors are superior than other CMOS Sensors on the market today including:

- ▶ Better Dynamic Range
- ▶ Higher QE% at 525nm
- ▶ Lower Temporal Dark Noise
- ▶ High Saturation Capacity

SOFTWARE

eCapture and eSDK

eCapture provides control of all camera functions for preview, capture and save. Advanced functions such as Area Of Interest (AOI), integration control, standard pre-processing such as brightness, gamma, frame rate control and many more. eCapture also provides <1% CPU overhead for Windows and Linux when capturing a 9Gbps image stream from the cameras directly to application buffers. eSDK is available with concise API commands to facilitate simple integration with custom software for Windows® and Linux® based Systems. Access to eSDK is available at no charge with the purchase of an Emergent camera system. The eSDK software solution also provides <1% CPU overhead for Windows and Linux when capturing a 9Gbps image stream from the cameras directly to application buffers.

ACCESSORIES

10GigE NIC CARDS

10G NICs are available direct from Emergent Vision Technologies and come with the MVA optimized driver for extremely low CPU utilization. We have 3 NIC options to choose from for our HR Series, Single NICs, Dual NICs (2 cameras per card), and Dual SYNC NICs (2 cameras per card that can be sync'd to sub 1 micro second). We have 2 NIC options for our HT Series, Single NICs and Dual NICs (2 cameras per card). All are fully supported by the Emergent eSDK and eCapture for seamless integration.



Cables, Power supplies, and GPIO

SFP+ fiber, direct attach, and CAT6A cables are available direct from Emergent Vision Technologies. For the HR line, direct attach cables are available for applications up to 10M, while fiber cables are available for longer distance applications (up to 10KM). CAT6A Cable is available up to 100M for the HT line. Power supplies and GPIO accessories are also available to our customers for easy setup and use with our cameras.

GEN*i*CAM



Lens Mount System

Emergent cameras can use Birger Engineering Canon EF adapters for electronic iris and focus control. The benefits of such a solution are to be able to bring the lens under software control with all communications happening over the main camera interface - in this case, the enormously fast 10GigE interface. as we have noted in the past, the 10GigE SFP+ interface has ultimate flexibility for cable lengths with direct attach ($\leq 10\text{m}$) and fiber options to over 10 kilometers



BIRGER engineering

- ✓ 1ST MFG OF 10 GIGE & 25 GIGE CAMERAS
- ✓ SHIPPING 10 GIGE 6+ YEARS
- ✓ SMALLEST FORM FACTOR
- ✓ 1-10KM CABLE LENGTH WITH HR SERIES (FIBER)
- ✓ 1-100M CABLE LENGTH WITH HT SERIES (CAT6A)
- ✓ GIGE VISION AND GENICAM COMPLIANT
- ✓ MULTI CAMERA SYSTEM OPTIONS FOR SINGLE PC

HR SERIES



HR-2000

Variation
Mono/Color/Near IR

Sensor
CMV2000

Resolution
2048 x 1088

Megapixels
2MP

Sensor Type
2/3" CMOS

Max Frame Rate
338 fps

Cell Size
5.5 μm

Standard Mount
C Mount

Dimensions (mm)
97 x 58 x 39



HR-3000-S

Variation
Mono / Color

Sensor
IMX252

Resolution
2048 x 1536

Megapixels
3MP

Sensor Type
1/1.8" CMOS

Max Frame Rate
216 fps

Cell Size
3.45 μm

Standard Mount
C Mount

Dimensions (mm)
97 x 58 x 39



HR-4000

Variation
Mono/Color/Near IR

Sensor
CMV4000

Resolution
2048 x 2048

Megapixels
4MP

Sensor Type
1" CMOS

Max Frame Rate
179 fps

Cell Size
5.5 μm

Standard Mount
C Mount

Dimensions (mm)
97 x 58 x 39



HR-5000-S

Variation
Mono / Color

Sensor
IMX250

Resolution
2448 x 2048

Megapixels
5MP

Sensor Type
2/3" CMOS

Max Frame Rate
163 fps

Cell Size
3.45 μm

Standard Mount
C Mount

Dimensions (mm)
97 x 58 x 39



HR-8000-S

Variation
Mono / Color

Sensor
IMX255

Resolution
4096 x 2160

Megapixels
8MP

Sensor Type
1" CMOS

Max Frame Rate
110 fps

Cell Size
3.45 μm

Standard Mount
C Mount

Dimensions (mm)
97 x 58 x 39



HR-12000-S

Variation
Mono / Color

Sensor
IMX253

Resolution
4096 x 3000

Megapixels
12MP

Sensor Type
1.1" CMOS

Max Frame Rate
80 fps

Cell Size
3.45 μm

Standard Mount
C Mount

Dimensions (mm)
97 x 58 x 39



HR-12000

Variation
Mono/Color/Near IR

Sensor
CMV12000

Resolution
4096 x 3072

Megapixels
12MP

Sensor Type
28mm CMOS

Max Frame Rate
84 fps

Cell Size
5.5 μm

Standard Mount
F,M42

Dimensions (mm)
97 x 58 x 50



HR-20000

Variation
Mono / Color

Sensor
CMV20000

Resolution
5120 x 3840

Megapixels
20MP

Sensor Type
35mm CMOS

Max Frame Rate
32 fps

Cell Size
6.4 μm

Standard Mount
F,M52

Dimensions (mm)
97 x 58 x 60



HR-50000

Variation
Mono / Color

Sensor
CMV50000

Resolution
7920 x 6004

Megapixels
50MP

Sensor Type
35mm CMOS

Max Frame Rate
23 fps

Cell Size
4.6 μm

Standard Mount
F,M52

Dimensions (mm)
97 x 58 x 60

HT SERIES



HT-2000

Variation
Mono/Color/Near IR

Sensor
CMV2000

Resolution
2048 x 1088

Megapixels
2MP

Sensor Type
2/3" CMOS

Max Frame Rate
338 fps

Cell Size
5.5 μm

Standard Mount
C Mount

Dimensions (mm)
88 x 58 x 39



HT-3000-S

Variation
Mono / Color

Sensor
IMX252

Resolution
2048 x 1536

Megapixels
3MP

Sensor Type
1/1.8" CMOS

Max Frame Rate
216 fps

Cell Size
3.45 μm

Standard Mount
C Mount

Dimensions (mm)
88 x 58 x 39



HT-4000

Variation
Mono/Color/Near IR

Sensor
CMV4000

Resolution
2048 x 2048

Megapixels
4MP

Sensor Type
1" CMOS

Max Frame Rate
179 fps

Cell Size
5.5 μm

Standard Mount
C Mount

Dimensions (mm)
88 x 58 x 39



HT-5000-S

Variation
Mono / Color

Sensor
IMX250

Resolution
2448 x 2048

Megapixels
5MP

Sensor Type
2/3" CMOS

Max Frame Rate
163 fps

Cell Size
3.45 μm

Standard Mount
C Mount

Dimensions (mm)
88 x 58 x 39



HT-8000-S

Variation
Mono / Color

Sensor
IMX255

Resolution
4096 x 2160

Megapixels
8MP

Sensor Type
1" CMOS

Max Frame Rate
110 fps

Cell Size
3.45 μm

Standard Mount
C Mount

Dimensions (mm)
88 x 58 x 39



HT-12000-S

Variation
Mono / Color

Sensor
IMX253

Resolution
4096 x 3000

Megapixels
12MP

Sensor Type
1.1" CMOS

Max Frame Rate
80 fps

Cell Size
3.45 μm

Standard Mount
C Mount

Dimensions (mm)
88 x 58 x 39



HT-12000

Variation
Mono/Color/Near IR

Sensor
CMV12000

Resolution
4096 x 3072

Megapixels
12MP

Sensor Type
28mm CMOS

Max Frame Rate
84 fps

Cell Size
5.5 μm

Standard Mount
F,M42

Dimensions (mm)
88 x 58 x 50



HT-20000

Variation
Mono / Color

Sensor
CMV20000

Resolution
5120 x 3840

Megapixels
20MP

Sensor Type
35mm CMOS

Max Frame Rate
32 fps

Cell Size
6.4 μm

Standard Mount
F,M52

Dimensions (mm)
88 x 58 x 60



HT-50000

Variation
Mono / Color

Sensor
CMV50000

Resolution
7920 x 6004

Megapixels
50MP

Sensor Type
35mm CMOS

Max Frame Rate
23 fps

Cell Size
4.6 μm

Standard Mount
F,M52

Dimensions (mm)
88 x 58 x 60



LR-8K

PACE SERIES

Experience line scan imaging like never before with the all new LR-8K high speed line scan cameras from Emergent Vision Technologies. The new LR-8K provides uncompromised line scan imaging possibilities for all your high-speed inspection needs.

Integrate the new LR-8K to enable machine vision applications with low-noise, high-precision functionality and make processes seamless in ultra-high-speed environments.

The LR-8K includes superior specs which include:

- ▶ E2V Elite 8K line scan image sensor.
- ▶ Global shutter CMOS technology
- ▶ High-speed 10GigE SFP+ interface
- ▶ Single Line - 137KHz
- ▶ Bilinear - 68KHz



- ▶ Trilinear - 45KHz
- ▶ 7.5 μ m cell size for low-noise capture
- ▶ GigE Vision, GenICam compliant

Powered by the E2V Elite 8K CMOS image sensor, the LR-8K provides multilinear scans at true 8K vision. This results in a higher signal to noise ratio and makes high-precision imaging possible even when illumination is a challenge.

Take 8K line resolution to the next level by powering it with ultra-high-speed processing. The LR-8K comes with our revolutionary 10GigE Vision platform for performance at scale and minimal operational costs. We used the SFP+ interface for cable lengths from 1 meter up to 10 kilometers without the need for costly fiber converters/repeaters. This results in lossless capture and ruthless processing efficiency.



10GIGE
PACE

Sensor

E2V Elite 8K CMOS Sensor

Resolution

8192 pixels horizontal

Line Scan Mode

Single line - 137KHz - 8K

Bilinear - 68KHz - 8K

Trilinear - 45KHz - 8K

Sensor Scanning Width

61.44mm

Cell Size

7.5 μm (H) x 7.5 μm (V)

Dynamic Range

68dB

Digital Output

8 & 10 bit

GPIO / Triggering

24V-max opto-isolated IO

RS422 Shaft Encoder Module

Interface

SFP+, 10GigE

Trigger mode

Line start

Shading correction

Flat shading

Color Correction

Color temperature selection of matrix

LUT

1024 point

Lens Mount

M72 x 0.75 thread / F Mount Adapter

Operating System

Windows 7/8 & 10, Linux (64bit)

Compliance

CE, FCC, RoHS, WEEE,

GigE Vision, GenICam

Dimensions & Weight

90x90x62 - 680g

Operating Temperature

0C - 45C

Storage Temperature

-30C to +60C

Power Requirements

8W



Introducing the World's First Ever 25GigE High Speed Area & Line Scan Camera Series

25GIGE
BOLT

25GIGE
ACCEL

ALL ABOUT 25GIGE

What is 25GigE?

25GigE (a.k.a. 25 Gigabit Ethernet) is the successor to 10GigE (10 Gigabit Ethernet) which is a rapidly growing interface for machine vision applications. 25GigE, as the successor, provides all the same benefits of 10GigE but with a 2.5x increase in data-rate which leads to a 2.5x increase in frame rate. 25GigE, as with 10GigE, is a cross industry standard which has been around for years and is managed/produced by the IEEE 802.3 working group. The standard is used in applications such as telecom, data communications industrial, military, etc., and now we leverage the benefits of this globally accepted cross industry technology for machine vision applications.

Why 25GigE for my application?

- ▶ Ultra high data/frame rates
- ▶ A large number of low cost accessory & cabling options
- ▶ Simplified solution to Coaxpress
- ▶ Network support and accurate multi-camera synchronization using IEEE1588
- ▶ Low CPU overhead, low latency, low jitter using VMA
- ▶ Industry acceptance due IEEE and AIA standardization

Does GigE Vision work for 25GigE?



Yes. GigE Vision (the machine vision specific interface standard) supports Emergent 25GigE cameras. 25GigE cameras with various GigE Vision compliant software such as Cognex VisionPro, NI Labview, MVTec Halcon, Norpix StreamPix, etc.

**IT'S ALL ABOUT
SPEED**



What is the bandwidth of 25GigE?

The maximum bandwidth available for 25GigE is 25Gbps or 3,125 Mbytes/s. The usable bandwidth is around 24.5Gbps or 3,062 Mbytes/s.

What are the cable options and max cable lengths of 25GigE?

The main connector option for 25GigE is SFP28. Using the SFP28 interface provides two supported options which cover the cable length requirements of all applications. The first option utilizes SFP28 multi-mode fiber modules/transceivers and LC-LC multi-mode fiber cables and the cable lengths for this three-piece cable range from 1m to 70m. The second option utilizes SFP28 single-mode fiber modules/transceivers and LC-LC single-mode fiber cables and the cable lengths for this three-piece cable range from 1m to 10Km

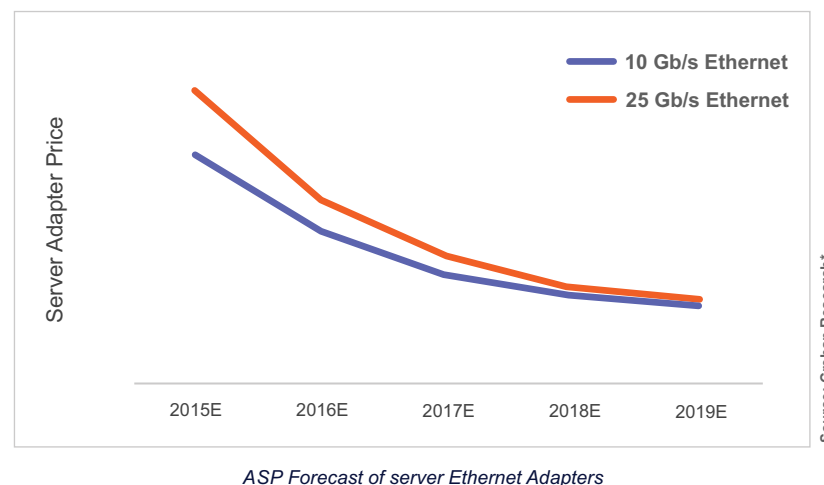
25GigE NIC Cards & VMA for 25GigE.

Emergent and Mellanox Technologies have partnered to provide an optimal solution for Machine Vision applications. Mellanox supplies their NICs pre-programmed with VMA and are available direct from Emergent. We have 2 NIC options to choose from for our HB camera series:

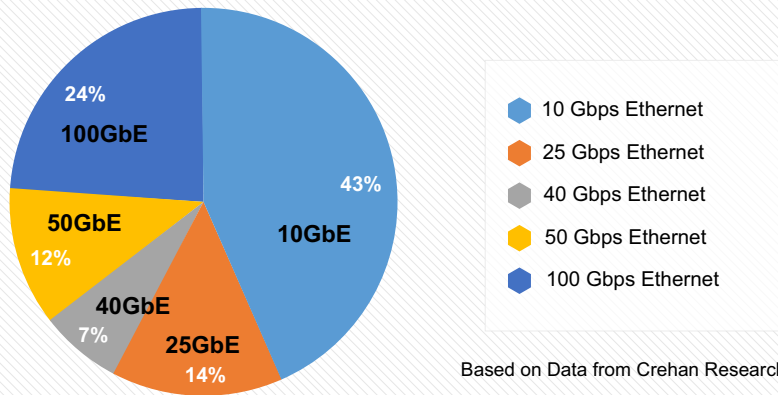
- ▶ Single NICs, Dual NICs (2 cameras per card). By using these cards customers can expect to see:
- ▶ Extremely low CPU utilization (less than 1% single CPU core overhead for a 24Gbps video stream)
- ▶ Extremely low latency
- ▶ Extremely low jitter
- ▶ Excellent price performance

What software can be used with 25GigE cameras?

Generally, any GigEVision compatible software should work with Emergent cameras by virtue of Emergent cameras being certified as GigEVision compliant by the AIA. We have tested with a few such 3rd party software such as Cognex VisionPro, NI Vision Acquisition Toolbox, MVTec Halcon, Norpix StreamPix 6. Emergent also offers free software with a camera purchase: eCapture is our free viewer software, and eSDK is our C++ SDK for easy application development.



2020 High Speed NIC Revenue



How does 25GigE compare with other interfaces?

Emergent 25GigE cameras, coupled with Mellanox' VMA, equals or out-performs other interfaces in every technical category and its price performance is the best. With VMA, all the shortcomings associated with 1GigE w.r.t. CPU utilization, latency and jitter are obliterated. Industry acceptance is already very good and will only get better.

	GigE	USB 3.0	Camera Link	CXP	10GigE	25GigE	Winner
Bandwidth	125MB/s	640MB/s	425MB/s	780MB/s	1,250MB/s	3,125MB/s	10/25GigE ⁵
Cable Length	100m	3m	5m	40m	10m/300m/Kms ¹	70m/Kms ¹	10/25GigE
Standard Support	Excellent	Excellent	Good	Good	Excellent	Excellent	10/25GigE ²
Industry Adoption	Excellent	Good	Fair	Fair	Excellent	Excellent	10/25GigE ²
CPU Usage	Medium	Low	Low	Low	Low ³	Low ⁴	10/25GigE ²
Latency / Jitter	Fair	Good	Good	Good	Excellent ³	Excellent ⁴	10/25GigE
Price Performance	Good	Good	Fair	Fair	Excellent	Excellent	10/25GigE

1. Dependent on the accessory options chosen.

2. Tie.
3. Using Myricom's MVA

4. Using Mellanox' VMA
5. Per cable

HB-12000



HB-50000



BOLT SERIES

A testament to our name, Emergent Vision Technologies will become the first machine vision camera manufacturers in the world to produce machine vision area scan cameras powered by the latest 25 GigE interface.

The EVT Bolt Series by Emergent Vision Technologies is the next standard in high speed, high definition imaging. This new line of cameras utilizes a 25 Gigabit interface. It works with machine vision applications and provides agile solutions to modern-day high-speed imaging needs of businesses.

Being powered by the latest 25 GigE interface, the HB-50000 and HB-12000 provides a 2.5x increase in data transmission speeds over its predecessor, 10 GigE and twenty-five-fold increase over the industry standard, the GigE Vision interface. 25 Gigabit Ethernet is a standard for Ethernet connectivity in datacenter environments, developed by IEEE802.3

- The world's first 25 Gigabit Ethernet interface for machine vision

An industry first, the 25 GigE Vision interface used on the EVT Bolt Series Cameras is the most technologically advanced communications protocol used in machine vision systems to date. It offers the highest data transmission speeds and can cater to imaging needs of very high-speed phenomena. This is particularly useful in applications where data transmission is of utmost importance and lossless image processing is required to preserve all details.

HB-12000

Sensor
CMV12000

Resolution
4096 x 3072

Megapixels
12MP

Sensor Type
28mm CMOS

Max Frame Rate
188fps

Cell Size
5.5µm square

Standard Mount
M42x1x12mm BFL,
Optional F Mount Available

Shutter
Global



Bit Depth
8 or 10 Bit

Interface
High Speed 25 GigE SFP 28

GPIO / Triggering
2 in, 4 out
Software, External
(Pulse or Edge)

Exposure/Integration
10µs-1s

Dynamic Range
60 dB

Digital Output
8, 10 bit

Monochrome Modes
Mono8, Mono10

Color Modes
RGB8, YUV411, YUV422,
YUV444, BGR8

Raw Modes
BayerRGB, BayerRG10

HB-50000

Sensor
CMV50000

Resolution
7920x6004

Megapixels
50MP

Sensor Type
35mm CMOS

Max Frame Rate
30fps

Cell Size
4.6µm square

Standard Mount
52mm, M52x1.5x12mm BFL,
F-mount Available

Shutter
Global

Bit Depth
8 or 10 Bit

Interface
High Speed 25 GigE SFP 28

GPIO / Triggering
2 in, 4 out
Software, External
(Pulse or Edge)

Exposure/Integration
10µs-1s

Dynamic Range
60 dB

Digital Output
8, 10 bit

Monochrome Modes
Mono8, Mono10

Color Modes
RGB8, YUV411, YUV422,
YUV444, BGR8

Raw Modes
BayerRGB, BayerRG10

BOLT SERIES - Sony



HB-500-S

Variation
Mono/Color

Sensor
Sony IMX426

Resolution
812 x 620

Megapixels
0.50 MP

Sensor Type
1/1.7 - 9.2mm CMOS

Max Frame Rate
1594.7 fps / TBD

Cell Size
9 μ m

Standard Mount
C Mount

Dimensions & Weight
97 x 58 x 40 - 250g



HB-1800-S

Variation
Mono / Color

Sensor
Sony IMX425

Resolution
1604 x 1100

Megapixels
1.76 MP

Sensor Type
1.1" - 17.6mm CMOS

Max Frame Rate
662.1 fps / TBD

Cell Size
9 μ m

Standard Mount
C Mount

Dimensions & Weight
97 x 58 x 40 - 250g



HB-2000-S

Variation
Mono/Color

Sensor
Sony IMX422

Resolution
1624 x 1240

Megapixels
2.01 MP

Sensor Type
1/1.7 - 9.2mm CMOS

Max Frame Rate
477.6 fps / TBD

Cell Size
4.5 μ m

Standard Mount
C Mount

Dimensions & Weight
97 x 58 x 40 - 250g



HB-2800-S

Variation
Mono / Color

Sensor
Sony IMX421

Resolution
1936 x 1464

Megapixels
2.8MP

Sensor Type
2/3" - 11.0mm CMOS

Max Frame Rate
409.2 fps / TBD

Cell Size
4.5 μ m

Standard Mount
C Mount

Dimensions & Weight
97 x 58 x 40 - 250g

*Preliminary data. Subject to change.



HB-7000-S

Variation
Mono / Color

Sensor
Sony IMX420

Resolution
3208 x 2200

Megapixels
7.06 MP

Sensor Type
1.1" - 17.6mm CMOS

Max Frame Rate
207.1 fps / TBD

Cell Size
4.5 μ m

Standard Mount
C Mount

Dimensions & Weight
97 x 58 x 40 - 250g



HB-17000-S

Variation
Mono / Color

Sensor
Sony IMX387

Resolution
5456 x 3076

Megapixels
16.8MP

Sensor Type
Four Thirds (16:9) - CMOS

Max Frame Rate
61fps / TBD

Cell Size
3.45 μ m

Standard Mount
52mm, M52x1.5x12mm BFL

Dimensions & Weight
97x58x60 - 400g



HB-20000-S

Variation
Mono/Color

Sensor
Sony IMX367

Resolution
4416 x 4428

Megapixels
19.5MP

Sensor Type
Four Thirds (1:1) - CMOS

Max Frame Rate
43fps / TBD

Cell Size
3.45 μ m

Standard Mount
52mm, M52x1.5x12mm BFL

Dimensions & Weight
97x58x60 - 400g



HB-30000-S

Variation
Mono / Color

Sensor
Sony IMX342

Resolution
6464 x 4852

Megapixels
31.36MP

Sensor Type
APS-C (4:3) CMOS

Max Frame Rate
35.4fps / TBD

Cell Size
3.45 μ m

Standard Mount
52mm, M52x1.5x12mm BFL

Dimensions & Weight
97x58x60 - 400g

*Preliminary data. Subject to change.

ACCEL SERIES

The Accel Line Scan Series by Emergent Vision Technologies gives new meaning to cutting edge camera technology by utilizing a 25 Gigabit interface. With release of the LB-8K and using an 8K CMOS sensor, the Accel LB-8K will extend the boundaries of line scan imaging and machine vision worldwide. It works with various vision applications and provides agile solutions to modern-day high-speed imaging needs of businesses.

The LB-8K includes impressive specifications:

- ▶ 8,192 effective pixels horizontal
- ▶ E2V Elite 8K line scan image sensor
- ▶ Global shutter CMOS technology
- ▶ High-speed 25 GigE SFP+ interface
- ▶ Single Line - 200KHz
- ▶ Bilinear - 100KHz
- ▶ Trilinear - 66KHz
- ▶ 7.5µm cell size for low-noise capture
- ▶ GigE Vision, GenICam compliant

EVT Accel LB-8K is also the world's first GigE Vision compliant line scan camera running 25 GigE. GigE Vision is a global camera interface standard developed using the Gigabit Ethernet communication protocol. GigE Vision allows for fast image transfer using low cost standard cables over very long lengths. With GigE Vision, hardware and software from different vendors

can interoperate seamlessly over GigE connections.

GigE Vision is a widely adopted interface around the world, with dozens of leading companies currently offering hundreds of GigE Vision compliant products.

LB-8K



Sensor

E2V Elite 8K CMOS Sensor

Resolution

8192 pixels horizontal

Line Scan Mode

Single line - 200KHz - 8K

Bilinear - 100KHz - 8K

Trilinear - 66KHz - 8K

Sensor Scanning Width

61.44mm

Cell Size

7.5 μm (H) x 7.5 μm (V)

Dynamic Range

68dB

Digital Output

8, 10 bit

GPIO / Triggering

24V-max opto-isolated IO

RS422 Shaft Encoder Module

Interface

SFP28 - 25 GigE

Trigger mode

Line start

Shading correction

Flat shading

Color Correction

Color temperature selection of matrix

LUT

1024 point

Lens Mount

M72 x 0.75 thread / F Mount Adapter

Operating System

Windows 7/8 & 10, Linux (64bit)

Compliance

CE, FCC, RoHS, WEEE,
GigE Vision, GenICam

Dimensions & Weight

90x90x62 - 680g

Operating Temperature

0C - 45C

Storage Temperature

-30C to +60C

Power Requirements

8W





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