

# Basler dart

## AREA SCAN CAMERAS



- Board level cameras with bare board, S- and CS-mount options
- Designed to meet smallest space as well as lowest weight and power requirements
- Plug and play with future-proof USB3 Vision technology
- Long-term availability and support
- Best cost-efficiency in class



## OVERVIEW

### Basler dart – Highly Flexible for Your Diverse Imaging Solutions

The Basler dart camera line has been developed to meet the requirements of a broad variety of vision applications. With its one-board design that comes with a USB 3.0 interface, the dart camera series offers the latest technology in a very small format. A distinctive combination of high quality and cost-effectiveness in development and product design allows us to offer you a surprisingly low starting list price of 99€.

With the dart series, you can choose from your ideal mix of board level type cameras:

- Bare board model without any additional lens mount, to meet high demands in extremely cost-driven system designs
- M12/S-mount front for highest flexibility, using a complete camera in very space-limited environments, such as in medical and retail applications, as well as embedded systems
- CS-mount front, popular for a variety of vision applications, either for typical machine vision in the field of factory automation, or solutions to serve the ITS (Intelligent Traffic System) business

With PGI, the dart camera offers a proprietary new feature set. PGI is a powerful in-camera image optimization that improves your images using the full speed of your camera, and has a unique combination of features consisting of improved sharpness, denoising, color-anti-aliasing and 5×5 debayering. This gives you the opportunity to get the best pictures directly from your camera without any additional CPU load. Use the options of Basler pylon Camera Software Suite to enable PGI, or change settings for selected PGI components for optimal results. Learn more about PGI at [www.baslerweb.com/PGI](http://www.baslerweb.com/PGI).

All dart cameras come with USB 3.0 interface and offer backwards compatibility to USB 2.0. Camera data and power are provided over only one cable. The high bandwidth of the USB 3.0 connection enables the dart cameras to deliver high-quality raw picture and video data in full motion. Compressing data, which causes image quality loss, is not necessary.

The dart also offers separate input/output ports for trigger or flash control and a broad set of features. In addition, this camera series has the most popular camera footprint of 29mm×29mm for its S- and CS-mount models. Without a lens mount, the dart sets a new standard in single board cameras with a footprint of only 27mm×27mm. Its low power consumption reduces heat dissipation issues.

Ready to make the change? Get the digital board level camera that - beyond industrial applications - is specifically targeting retail, medical and traffic applications, as well as embedded systems. Achieve improved performance at lower cost. This innovation in camera technology is available in a variety of models with different lens mounts and resolutions, and with sensors from leading manufacturers. If you are looking for a simple but sophisticated high-quality camera, the dart will hit your target!

#### Your benefits include:

- Smallest board level cameras with extremely low weight and power consumption
- USB3 Vision: Plug and play with a one-cable solution based on standards
- Field-proven Basler pylon Camera Software Suite with sophisticated drivers
- Perfect price/performance ratio with starting list price of 99€
- Long-term availability and support



# TECHNICAL DETAILS



## Specifications

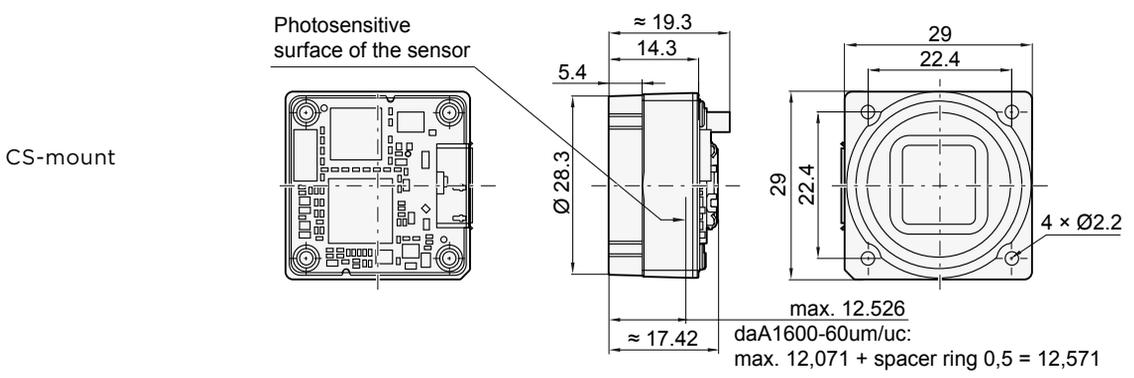
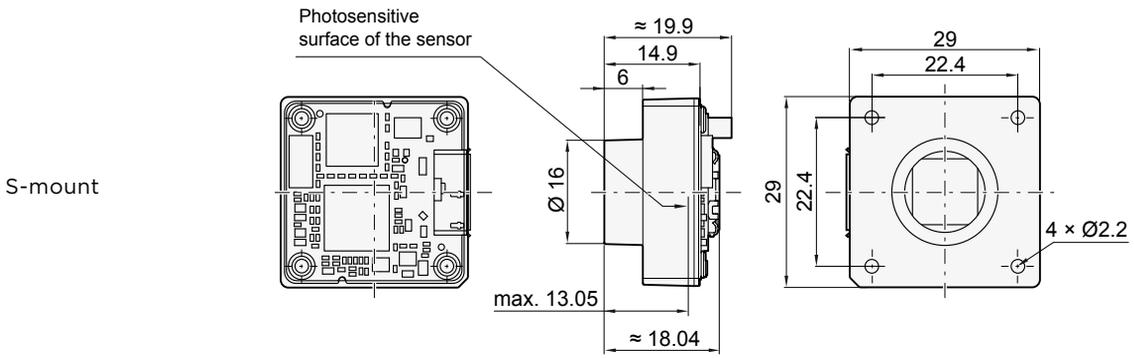
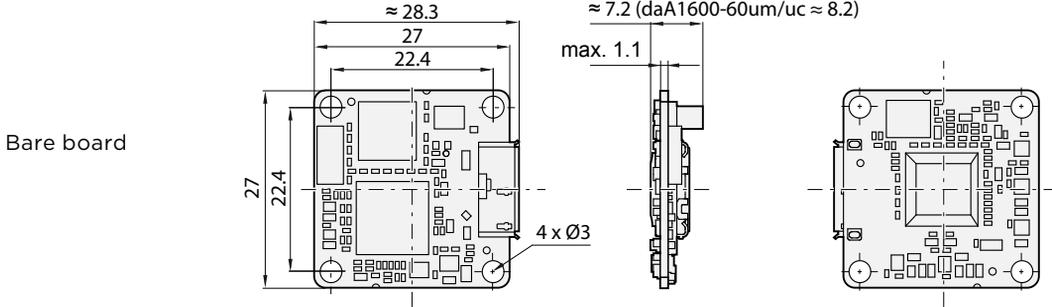
Basler dart	daA1280-54 um/uc	<b>NEW</b> daA1600-60 um/uc	daA1920-15 um	daA1920-30 um/uc	daA2500-14 um/uc
<b>Camera</b>					
Resolution (H×V pixels)	1280×960	1600×1200	1920×1080	1920×1080	2592×1944
Sensor	Aptina AR0134	EV76C570	Aptina MT9P031	Aptina MT9P031	Aptina MT9P031
Sensor Size (optical)	1/3"	1/1.8"	1/3.7"	1/3.7"	1/2.5"
Sensor Technology	CMOS, global shutter		CMOS, rolling shutter		
Pixel Size [µm²]	3.75×3.75	4.5×4.5	2.2×2.2	2.2×2.2	2.2×2.2
Frame Rate [fps]	54	60	15	30	14
Mono / Color	Mono / Color		Mono	Mono / Color	
Video Output Format	Mono (8, 12), YUV 4:2:2 Packed (YCbCr 422), Bayer (8, 12), RGB 8				
Interface	USB 3.0				
Synchronization	Via external trigger or free-run				
Exposure Control	Via external trigger or programmable via the camera API				
<b>Mechanical / Electrical</b>					
Housing Size (L×W×H)	S-, CS-mount models: 20 mm×29 mm×29 mm Bare board model: 7.2×27×27 daA1600-60um/uc: 8.2×27×27				
Housing Temperature	Up to 50°C				
Lens Mount	Bare board, S, CS		Bare board	Bare board, S, CS	
Digital I/O	2 Fast-GPIO (configurable as In/Out)				
Power Requirements	Via USB 3.0 interface				
Power Suspend Mode	Yes, less than 20 mW, configurable				
Power Consumption (typical)	-1.3 W	-1.3 W	-1.2 W	-1.3 W	
Weight (typical)	S-, CS-mount models: <15 g    Bare board model: <5 g				
Conformity	CE, FCC, RoHS, UL (in preparation), USB3 Vision, USB-IF (in preparation)				
<b>Software / Driver</b>					
Driver	Basler pylon Camera Software Suite or 3rd party USB3 Vision Software				
Operating System	Windows, Linux - 32 bit and 64 bit				
Conformity	USB3 Vision, GenICam				

Specifications are subject to change without prior notice. Latest specifications can be found on our website. Please visit [www.baslerweb.com/manuals](http://www.baslerweb.com/manuals) for the detailed camera User's Manual and [www.baslerweb.com/thirdparty](http://www.baslerweb.com/thirdparty) for information on third party software.

For availability please refer to our website [www.baslerweb.com/dart](http://www.baslerweb.com/dart)

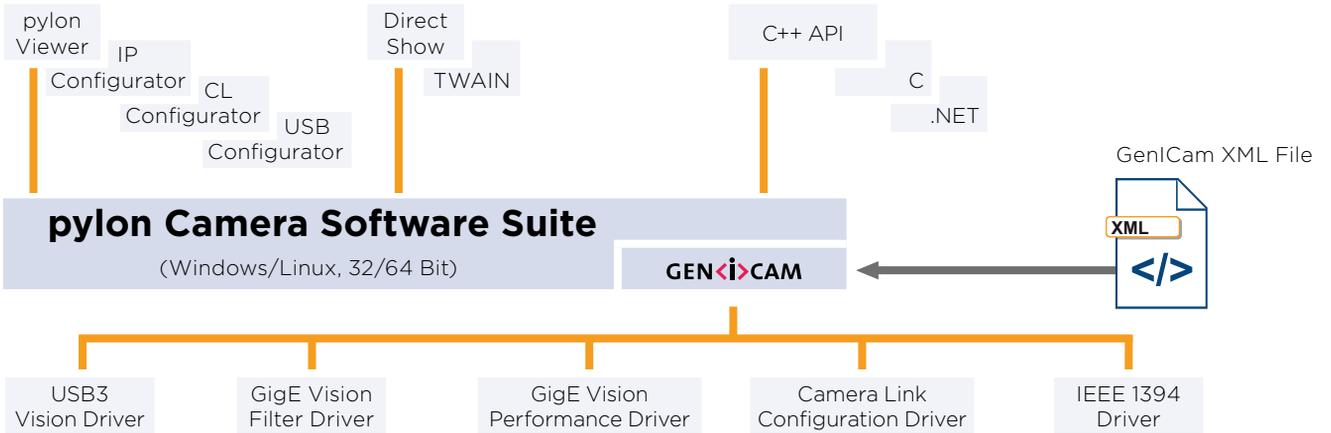
# TECHNICAL DETAILS

## Dimensions (in mm)



**Basler pylon Camera Software Suite**

The pylon Camera Software Suite operates with all Basler line scan and area scan cameras - no matter what interface they use. It offers stable, reliable and flexible data exchange between Basler cameras and PCs, for Windows and Linux on x86 and ARM based systems – at a very low CPU load.



The architecture of the pylon Camera Software Suite is based on GenICam Technology, which offers you easy access to the newest camera models and the latest features. Changes to an existing camera device in your application essentially become a plug-and-play process.

An easy-to-use set of tools lets you configure the camera's interface. Use the **pylon Viewer** to set camera parameters, to capture and display images, and to evaluate the camera.

The pylon **USB3 Vision Driver** fully supports the USB3 Vision standard. It allows Basler USB 3.0 cameras to use the full speed and bandwidth of USB 3.0 for image transmission while reducing resource load and using off-the-shelf hardware components.

The pylon **GigE Vision Performance Driver** quickly separates incoming packets carrying image data from other traffic on the network and makes the data available for use by your vision application while requiring the lowest CPU resources. This driver can only be used with network cards that include specific Intel chipsets. The pylon **GigE Vision Filter Driver** supports all kinds of hardware, common GigE network cards, and GigE ports on your motherboard as well.

The pylon **IEEE 1394b Driver** gives you access to a well-established interface technology, and the pylon

**Camera Link Configuration Driver** offers comfortable access to all camera parameters of Basler's latest Camera Link families ace, aviator, and racer.

The pylon Camera Software Suite also contains a powerful SDK that supports any type of application development. The pylon package contains the following main modules. Each one can be individually selected/unselected during the installation process, preventing the installation of unneeded modules on your system:

- USB3 Vision Driver
- GigE Vision Filter Driver
- GigE Vision Performance Driver
- IEEE 1394 Driver
- Camera Link Serial Communication Driver
- pylon Viewer
- SDK for all cameras; C, C++, .NET (C#, VB.NET, ...); (the 'pylon for Linux' version only supports the GigE and USB 3.0 interface via a C++ API)

The pylon Camera Software Suite can be downloaded for free at [www.baslerweb.com/pylon](http://www.baslerweb.com/pylon). For more information on the installation process, refer to the pylon Installation Guide. The helpful pylon Release Notes contain all improvements and bug fixes since the first pylon version.

## OTHER INFORMATION

### How Does Basler Ensure Superior Quality and Reliable High Performance?

Our approach to quality assurance is rigorous: we continually audit all facets of our business to ensure powerful performance, increase efficiency and reduce costs for our customers. We are compliant with all major quality standards including ISO 9001, CE, RoHS, and more. To ensure consistently high product quality, we employ several quality inspection procedures during manufacturing.

Every Basler camera is subjected to exhaustive optical and mechanical tests before leaving the factory. We have developed a unique combination of optics, hardware, and software tools that can quickly and efficiently calibrate a camera and measure its performance against a set of standard performance criteria. Regardless of what technology or camera model you choose you can be assured of consistent performance.

### 3-Year Warranty

Basler offers a 3-year warranty for their cameras and Basler Lenses. We make this unprecedented promise because we have unparalleled confidence in our products. We continually reinvest in research, development and superior manufacturing capabilities so that our customers can fully rely on the products we manufacture.

### About Basler

Founded in 1988, Basler is a leading global manufacturer of high quality digital cameras and lenses for factory automation, medical & life sciences, retail and traffic applications. The company employs 500 people at its headquarters in Ahrensburg, Germany and subsidiaries in the United States and Asia.

Basler's portfolio of products offers customers the vision industry's widest selection of industrial and network cameras as well as lenses. Today it includes some 300 camera models - and it's still growing. We're committed to developing technology that drives business results for our customers: cameras and lenses that are easy to use, easy to integrate, and deliver an exceptional price/performance ratio.



 **ALAVA  
INGENIEROS**  
[www.alavaingenieros.com](http://www.alavaingenieros.com)  
[alava@alava-ing.es](mailto:alava@alava-ing.es)

**Basler AG**  
**Germany, Headquarters**  
Tel. +49 4102 463 500  
[sales.europe@baslerweb.com](mailto:sales.europe@baslerweb.com)

**Basler, Inc.**  
**USA**  
Tel. +1 610 280 0171  
[sales.usa@baslerweb.com](mailto:sales.usa@baslerweb.com)

**Basler Asia Pte Ltd.**  
**Singapore**  
Tel. +65 6367 1355  
[sales.asia@baslerweb.com](mailto:sales.asia@baslerweb.com)

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