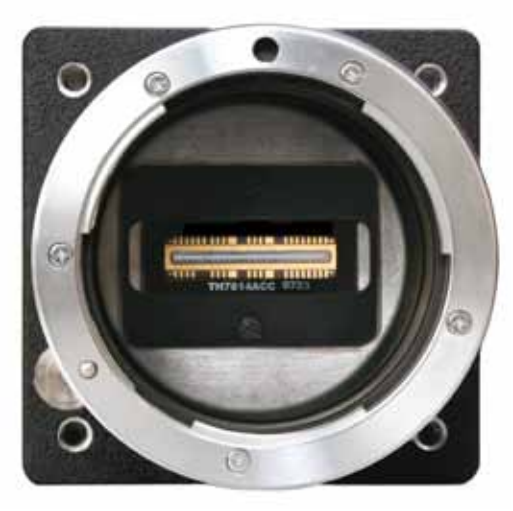
Basler runner

Line Scan Cameras

- High-quality line scan technology meets a cost-effective GigE interface
- Real color support in a compact housing size
- Shading correction compensates for difficult lighting conditions
- Flexible, easy integration supported by a variety of I/O features

Proven Image Quality and Easy to Use Without a Frame Grabber

The Basler runner family is a line scan series that combines high quality line scan technology with Gigabit Ethernet (GigE) interface technology. Proven image quality and an easy-to-use GigE interface make the runner family a perfect solution for a wide variety of applications. With the GigE interface, it's simple and straightforward for the user to adapt a camera to their system, to acquire their first images, and to adjust the camera's parameter settings to obtain the best results for their particular application. And because a Camera Link frame grabber and cables are not needed with runner cameras, a GigE line scan bundle is a highly cost-effective solution.



runner Monochrome Sensor Technology

The monochrome version of the runner is equipped with a single-line CCD sensor that has a square, 10 µm x 10 µm pixel size. This provides exceptional sensitivity and dynamic range, as reflected by the availability of video output formats up to 12 bits.

runner Color Sensor Technology

The ruL2098-10gc incorporates a tri-linear sensor with three separate light-sensitive lines to collect red, green, and blue information. A built-in spatial correction capability can be used to compensate for the small space between each of the sensor's lines, resulting in a true RGB image in a wide variety of applications.

Basler runner cameras are an ideal fit for a variety of applications including web inspection (wood, paper, foil, etc.), surface inspection (printed circuit boards, flat panels and displays, semiconductors, etc.), document scanning and postal sorting, or food inspection.

Your benefits include:

- More than 100 megabytes of data per second and up to 100 meter cable length with GigE
- Reliable, high-bandwidth data transfer at the lowest CPU load with the pylon driver package
- Superior image quality improves your image processing results
- Optimum image quality without the need for an expensive matched lens, providing you with an affordable solution for color imaging
- Use of a tri-linear sensor results in a very compact camera, reducing the space needed in your installation
- Simple integration environment provided by runner's flexible I/O capabilities (general purpose I/O), for example to transfer the trigger signal to another runner camera operating in parallel
- LED indicators and test image generation capabilities reduce your integration time and aid troubleshooting
- Broad variety of software features, such as the Multiplier and Divider to modify the incoming trigger signals and ensure that the camera is operating at the correct line speed
- An integrated spatial correction feature combines pixel data from the lines in the sensor eliminating the need for computer resources to perform this task
- Very attractive price/performance ratio

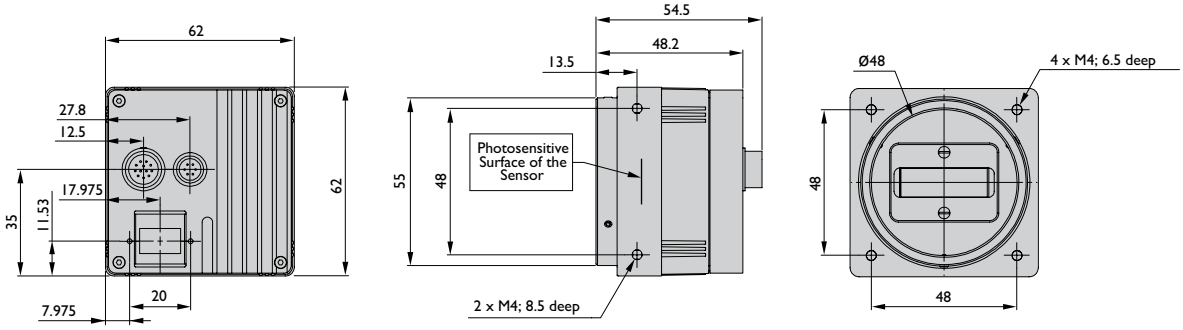
Specifications

Basler runner	ruL1024-19gm	ruL1024-36gm	ruL1024-57gm	ruL2048-10gm	ruL2048-19gm	ruL2048-30gm	ruL2098-10gc
Camera							
Sensor Size	1024 pixels			2048 pixels			2098 pixels per line
Sensor	Thompson TH7813A Linear monochrome CCD			Thompson TH7814A Linear monochrome CCD			Kodak KLI-2113 tri-linear color CCD
Pixel Size	10 µm x 10 µm						14 µm x 14 µm
Max Line Rate	18.7 kHz	35.7 kHz	56.1 kHz	9.7 kHz	18.7 kHz	29.2 kHz	9.2 kHz
Interface	Gigabit Ethernet (GigE Vision compliant)						
Pixel Bit Depths	Selectable 8 bit or 12 bit						
Video Output Format	Mono 8, Mono 12, Mono 12 Packed						RGB 8, RGB 12, YUV 4:2:2
Synchronization	Via external signal or software						
Exposure Control	Trigger width, timed, or off						
Mechanical / Electrical							
Housing Size (L x W x H)	54.5 mm x 62.0 mm x 62.0 mm						
Housing Temperature	Up to 50°C						
Lens Mounts	C or F-mount						F or V-mount
Digital I/O	3 in / 2 out or direct encoder input						
Power Requirements	12 VDC (±10%)						
Power Consumption (typical)	6.0 W	7.0 W	8.0 W	6.5 W	7.5 W	8.5 W	5.1 W
Weight (typical)	235 g						
Conformity	CE, FCC, IP 30, RoHS, GenICam, GigE Vision						

Specifications are subject to change without prior notice.

For detailed technical information, please see the camera manual that can be found on our website: www.baslerweb.com/manuals

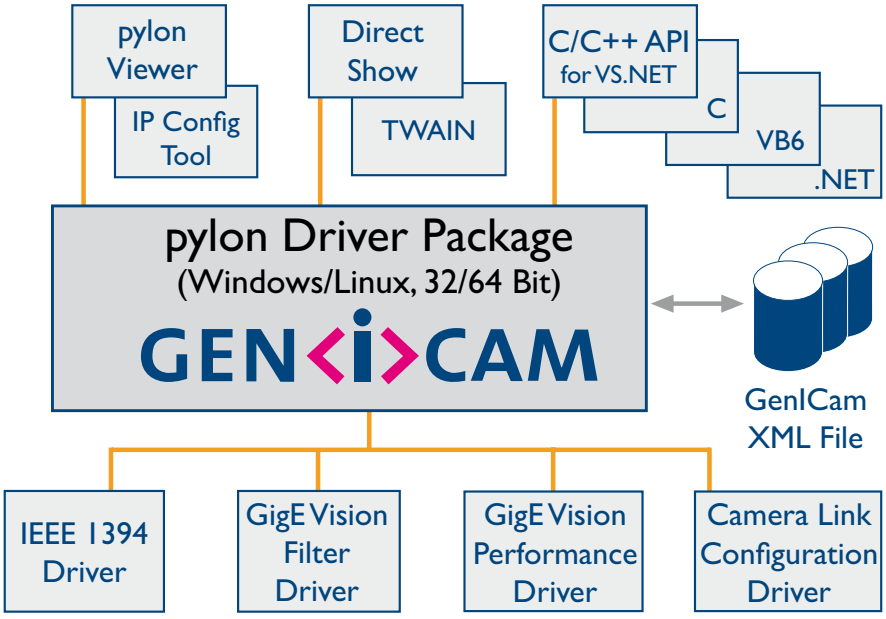
Dimensions (in mm)



Get your free version for Windows or Linux

Basler pylon Driver Package

The pylon driver package operates with all Basler line scan and area scan cameras. It offers stable, reliable and flexible data exchange between Basler cameras and PCs, at a very low CPU load.



The internal architecture of the pylon driver package 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.

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. The pylon Camera Link Configuration driver offers a comfortable access to all camera parameters of Basler's latest Camera Link families aviator, ace, and racer.

The pylon Viewer offers you a convenient application for testing and evaluating Basler cameras. The pylon IP Configuration tool helps you to set up multi-camera systems easily via local network boundaries. The pylon SDK 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.

- GigE Vision Filter Driver
- GigE Vision Performance Driver
- IEEE 1394 Driver
- Camera Link Serial Communication Driver
- pylon Viewer
- IP Configuration Tool
- pylon SDK for all Cameras; C,C++, C# and VB6 (the 'pylon for Linux' Version only supports the GigE interface via a C++ API)

The pylon driver package can be downloaded for free from our website. 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.

What Makes Basler Camera Quality So Special?

Basler runner cameras and the Basler pylon driver package are 100% GigE Vision compliant. The GigE Vision Standard has become a synonym for the new interface technology used in machine vision systems and in related industries like intelligent traffic systems and medical imaging.

The physical implementation of the GigE Vision interface, such as cables and RJ-45 connectors, are based on Gigabit Ethernet technology. This new technology breaks bandwidth barriers and offers 100 meter cable lengths to make a change from the established FireWire or Camera Link Technology much more attractive. Lower cable costs and eliminating the need for a frame grabber also argue in favor of the change.

The logical implementation of the GigE Vision Standard is based on the internet UDP protocol. Compared to other common protocols such as TCP/IP, UDP's lower protocol overhead limits the resources needed for image data transfer. The GigE Vision protocols implemented on top of UDP provide real-time capability, proper error handling, and the secure transfer of image data (no image loss). These techniques ensure reliability and are the premise that makes Gigabit Ethernet applicable to vision systems.

An AIA committee is continuing to expand the GigE Vision standard. Basler is pushing this effort forward by contributing personnel and technical know-how. For more information see www.machinevisiononline.org

To ensure consistently high product quality, we employ several quality inspection procedures during manufacturing. The following list describes some of the most essential actions we take to meet your highest requirements:

- The back focal length on each camera is carefully measured and adjusted. This guarantees an optimum distance between the lens flange and the sensor and ensures compliance with optics standards.
- Our advanced Camera Test Tool (CTT+), the first fully-automated inspection system for digital cameras, checks all of the significant quality aspects of each camera we produce. The CTT+ is a unique combination of optics, hardware, and software that can be quickly and efficiently used to calibrate a camera and to measure its performance against a set of standards. For defined sets of conditions, an automated software program examines the camera's output, makes any calibration adjustments necessary, and compares the output to a strictly defined set of performance criteria.

RoHS Compliance

The Basler runner series is RoHS compliant. This is especially important in applications where the the end-user requires strict RoHS compliance in all system components.

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