Basler PowerPack

FOR MICROSCOPY

- Pick and choose your complete plug-and-play microscopy package

- Count on high performance cameras with state-of-the-art CMOS sensors

- Work with professional software for image acquisition and analysis

- Take advantage of Basler's unique advanced image enhancement and color adjustment technology

BASLER
the power of sight

Basler PowerPack for Microscopy – Tailored All-round Package for Precision without Compromises

In every implementation of a microscopy application, your system's requirements are very individual and so are your expectations. Visualization and monitoring, image capturing, processing and/or analysis, as well as discussion, documentation and archiving in life science, medical or industrial settings: each task provides insights into fine details, structure and function of the most diverse and smallest objects.

Digital cameras provide highest image quality in real-time, outstanding color reproduction and fidelity, and a high dynamic range. These are prerequisites essential for reproducible, detailed observation, differentiation and analysis of the most delicate structures in materials or biological samples.

Thanks to Basler's modular PowerPack concept, you can now tailor your camera system without compromises. Benefit from Basler's high quality cameras, with all necessary components at your fingertips for a comfortable system set-up and easy installation. Rely on precise and reliable imaging, as well as on professional software for image acquisition and analysis.

AT BASLER, WE GIVE TECHNOLOGY **THE POWER OF SIGHT**.

OVERVIEW

STEP 1 – PICK AND CHOOSE YOUR CAMERA

1

Based on today's ambitious microscopy requirements, Basler offers color cameras equipped with the standardized USB 3.0 interface in various performance configurations:

- State-of-the-art CMOS sensor technology provides highest performance.

- Resolutions from 1.2 MP to 5.1 MP produce top-notch image quality.

- No matter if capturing moving objects or if real-time visualization is needed, up to 200 images per second cover complete and reliable image processing.

Choose **Basler microscopy pulse** for best cost efficiency.
Choose **Basler microscopy ace** to meet highest performance requirements.
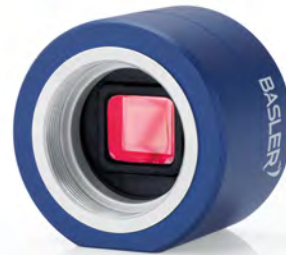
STEP 2 – BENEFIT FROM COMPATIBLE EQUIPMENT SET-UP AND EASY QUICK START

2

Your Basler PowerPack is designed for an easy system setup. With your chosen camera, you receive a tested USB 3.0 cable, a simple-to-understand quick install guide, as well as professional microscopy software. The PowerPack with pulse microscopy camera also includes a CS- to C-mount adapter for trouble-free system assembly.

STEP 3 – GET BEST RESULTS FOR YOUR APPLICATION **3**

Basler´s PowerPacks for Microscopy include cameras with the latest and most cost-effective CMOS technology. In combination with the professional and easy-to-use software, the cameras are perfectly suitable for a wide range of optical microscopy applications.

Technology:

- Brightfield
- Contrasting methods
- Darkfield
- Standard fluorescence
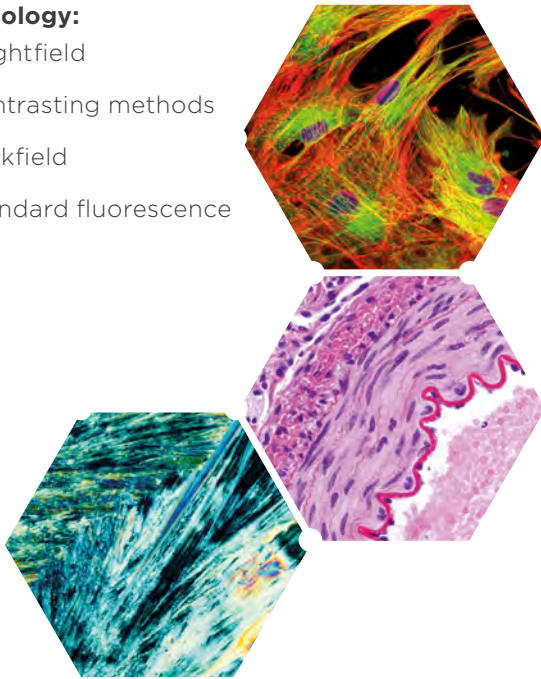
Application area:

- Education
- Industry (chemical and pharmaceutical industry, microelectronics, semiconductor industry)
- Materials science and engineering technology
- Forensics
- Life Sciences (cell biology, developmental biology, zoology and plant science, neuroscience)
- Spermatology
- Diagnostics (histology, pathology, hematology, cytology, microbiology)

STEP 4 – TRUST IN STATE-OF-THE-ART VISION TECHNOLOGY MADE IN GERMANY **4**

Over 25 years of experience makes Basler's equipment the most reliable and trusted industrial vision technology in the market. As a key driver of technology trends and vision standards, we measure our cameras and their components against the highest standards and offer outstanding quality for reproducible pictures and reliable analysis.

We are constantly developing and improving our products. Already today we install many cameras into medical and life science applications. In these applications digital cameras must provide highest image quality and exceptional color reproduction. New advanced image enhancement and color adjustment algorithms enable consistent and repeatable color fidelity, and perfectly reproduce pictures of challenging samples.

Basler cameras are not only known for their outstanding performance and state-of-the-art technology. Thanks to exhaustive quality assurance measures, long-lasting camera life is a given. We also stand for a long-term market availability of our cameras to make your decision worthwhile and satisfying.

Choose Your Microscopy Camera Tailored to Your Requirements

		Get Best Value for Money				Enjoy Highest Performance					
		Basler Microscopy pulse				Basler Microscopy ace					
Technology	Sensor technology	Aptina 1/3″ CMOS	Aptina 1/3.7″ CMOS	Aptina 1/3″ CMOS	Aptina 1/2.5″ CMOS	Sony PRE-GIUS 1/1.8″ CMOS	ON Semicon-ductor 1/2″ CMOS	ON Semicon-ductor 1/2″ CMOS	Sony PRE-GIUS 1/1.2″ CMOS	Sony PRE-GIUS 1/1.8″ CMOS	Sony PRE-GIUS 2/3″ CMOS
	Resolution [MP]	1.2	2.0	3.3	5.0	1.3	1.3	1.3	2.3	3.2	5.1
	Speed [fps]	54	30	20	14	48	145	200	82	55	35
Applications	Standard light microscopy	✓	✓	✓	✓	✓	–	–	–	–	–
	Standard fluorescence	✓	✓	✓	✓	✓	–	–	–	–	–
	Advanced fluorescence	–	–	–	–	✓	✓	✓	✓	✓	✓
	Education	✓	✓	✓	✓	–	–	–	–	–	–
	Monitoring, documentation and archiving	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Medical & life sciences	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Industrial	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Sperm analysis	–	–	–	–	–	✓	✓	–	–	–

Many routine microscopic applications in industrial, biological or medical laboratory settings, for example in materials science, histology, cell biology, hematology or microbiology, are based on light microscopy using various illumination and contrast methods. Today cameras are a central part of these applications and are used wherever it is important to monitor images live and discuss, capture, analyze and archive them. Cameras in conventional light microscopy must reliably deliver high-resolution, pin-sharp images with appealing color fidelity.

In the future, cameras with CMOS sensors will play an important role in microscopy thanks to ongoing development and a significantly improved performance. CMOS sensors are not only cost-effective, compact and versatile. Their high speeds (frame rate) and resolution (number of pixels), lower power consumption and, most recently, improved noise characteristics, dynamics, quantum efficiency and color concepts have opened them up to applications previously reserved for CCD sensors.

Your benefits include:

■ Basler microscope cameras – small but mighty

■ Proven and latest imaging technology

■ Outstanding image quality

■ New image enhancement and color adjustment algorithms

■ USB 3.0 interface for smooth live preview, fast focusing and sample screening

■ Best price/performance ratio

■ Made with German precision

Highlights: Basler Microscopy pulse

Reliable lightweight

The Basler Microscopy pulse cameras with resolutions between 1.2 MP and 5 MP come in with USB 3.0 as standard interface. USB 2.0 backward compatibility offers maximum system flexibility. The cameras are specifically designed to be cost-effective and easy-to-use. High frame rates allow for smooth live viewing, fast focusing and sample screening. The rock-solid image quality provided by the established Aptina CMOS sensor technology offers accurate and repro-ducible results for a broad range of standard light microscopy applications in educational settings, as well as life science, fluorescence, diagnostics, mate-rials or industrial inspection. Our newly-implemented image enhancement and color adjustment algorithms enable outstanding color reproduction and brilliant contrasts.
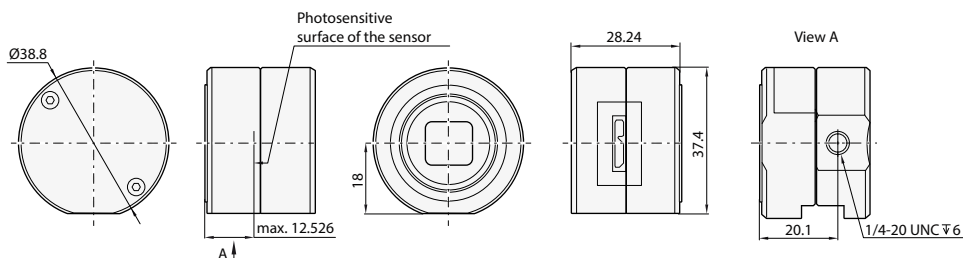
TECHNICAL DETAILS

Specifications

Basler Microscopy Camera	Microscopy pulse 1.2 MP	Microscopy pulse 2.0 MP	Microscopy pulse 3.3 MP	Microscopy pulse 5.0 MP
Resolution (H × V) [pixels]	1280×960	1920×1080	2048×1584	2592×1944
Sensor	Aptina	Aptina	Aptina	Aptina
Sensor Size (optical)	1/3″	1/3.7″	1/3″	1/2.5″
Sensor Technology	CMOS Global Shutter	CMOS Rolling Shutter	CMOS Rolling Shutter	CMOS Rolling Shutter
Pixel Size [µm²]	3.75×3.75	2.2×2.2	2.2 x 2.2	2.2×2.2
Active Area [mm]	6.00	4.85	5.70	7.13
Max. Frame Rate [fps]	54	30	20	14
Temporal Dark Noise	5.12 e-	6.4 e-	6.4 e-	6.4 e-
Dynamic Range [dB]	64	70.1	70.1	70.1
Exposure Control	Manual and Automatic			
Gain	Manual			
Mono / Color	Color			
Interface	USB 3.0			
Mechanical/Electrical				
Dimensions (d × L)	38.8 mm × 28.2 mm			
Temperature Range	0°C – 50°C			
Lens Mount	CS-mount			
Microscope Camera Adapter	0.3×, 0.33×, 0.35×	0.3×	0.3×, 0.33×, 0.35×	0.45×, 0.5×, 0.55×
Power Consumption (typical)	≈1.3 W			
Weight (typical)	<60 g			
Conformity	CE, RoHS, GenICam, UL, FCC, USB3 Vision			
Software Environment				
Operating System	Windows 7, Windows 8.1, Windows 10 - 32 bit and 64 bit			

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

Dimensions (in mm)

Highlights: Basler Microscopy ace

Exceptional performance of Sony PREGIUS sensors – feel the difference

The Basler Microscopy ace cameras feature Sony's latest-generation IMX CMOS sensors. Thanks to these global shutter sensors, the cameras offer low noise levels down to 2.2 e-, a large dynamic range of roughly 75 dB, and quantum efficiencies over 70 %. In this way, the Basler Microscopy ace models with resolutions up to 5.1MP achieve a new level of image quality, thus being the ideal choice for moderate to challenging microscopy applications in life science, fluorescence, diagnostics, materials science and engineering technology, forensics and many others.

Newly implemented image enhancement and color adjustment algorithms enable exceptional color reproduction and sharpness for precise and reliable results true to life. The ultra-high frame rates of up to 200 fps allow for smooth live video preview, fast focusing and sample screening even at full resolution.
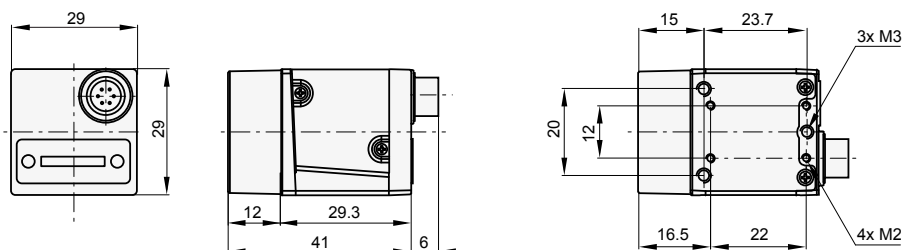
Specifications

Basler Microscopy Camera	Microscopy ace 1.3 MP 48	Microscopy ace 1.3 MP 145	Microscopy ace 1.3 MP 200	Microscopy ace 2.3 MP	Microscopy ace 3.2 MP	Microscopy ace 5.1 MP
Resolution (H×V) [pixels]	1280×1024	1280×1024	1280×1024	1920×1200	2048×1536	2448×2048
Sensor	Sony PREGIUS	ON Semiconductor	ON Semiconductor	Sony PREGIUS	Sony PREGIUS	Sony PREGIUS
Sensor Size (optical)	1/1.8″	1/2″	1/2″	1/1.2″	1/1.8″	2/3″
Sensor Technology	CMOS Global Shutter	CMOS Global Shutter	CMOS Global Shutter	CMOS Global Shutter	CMOS Global Shutter	CMOS Global Shutter
Pixel Size [μm^2]	5.86×5.86	4.80 x 4.80	4.80 x 4.80	5.86×5.86	3.45 x 3.45	3.45 x 3.45
Active Area [mm]	9.60	7.90	7.90	13.30	9.00	11.20
Max. Frame Rate [fps]	48	145	200	82	55	35
Temporal Dark Noise	6.83 e-	8.9 e-	10.6 e-	6.83 e-	2.22 e-	2.25 e-
Dynamic Range [dB]	73	56.2	56.3	73	71.4	70.6
Exposure Control	Manual and Automatic					
Gain	Manual					
Mono / Color	Color	Color	Mono	Color	Color	Color
Interface	USB 3.0					
Mechanical/Electrical						
Dimensions (L×W×H)	29.3 mm×29.0 mm×29.0 mm					
Temperature Range	0°C – 50°C					
Lens Mount	C-mount					
Microscope Camera Adapter	0.45×, 0.5×, 0.55×	0.5×	0.5×	1× – 1.2×	0.5×	0.67×, 1.0×
Power Consumption (typical)	≈2.9 W	≈3.0 W	≈3.0 W	≈3.7 W	≈2.6 W	≈2.7 W
Weight (typical)	80 g					
Conformity	CE, RoHS, GenICam, UL, FCC, USB3 Vision					
Software Environment						
Operating System	Windows 7, Windows 8.1, Windows 10 - 32 bit and 64 bit					

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

Dimensions (in mm)

# BASLER MICROSCOPY SOFTWARE

Benefits and Highlights

Included in your Basler PowerPack for Microscopy is the Basler Microscopy Software for camera control, image acquisition, processing and analysis. Camera and software are well-matched to ensure reliable performance. The easy installation as well as the intuitive user interface together with a comprehensive help tool for all features and functions makes your Basler PowerPack for Microscopy an ideal solution for monitoring, documentation and archiving in educational and routine research and industrial settings.

You need an imaging solution for more demanding microscopy applications in life science, materials science, biomedical or industrial research? Benefit from professional advanced software features, such as calibration, measurement, annotation or pseudo-coloring. Hue, saturation, brightness, contrast, gamma and gain controls provide advanced image enhancement and color adjustment options to achieve exceptional color reproduction. The software can easily be customized to best fit your workflow.

Basler Microscopy software features include:

- Real time live view

- Easy image acquisition

- Hue, saturation, brightness, contrast, gamma and gain controls

- Standard image processing

- Calibration, measurement and annotations

- Focus enhancement

- Automatic/manual exposure

- Selected light presets and white balance

- Unique sharpness algorithm for depth of focus

- Pseudo-coloring

- Save and restore camera settings

- Customize interface

- Comprehensive help for all functions

- Multilingual user interface (English, French, Italian, German, Japanese, Chinese, Russian)

- Supported by operating systems Windows 7, Windows 8.1, Windows 10 – 32 bit and 64 bit
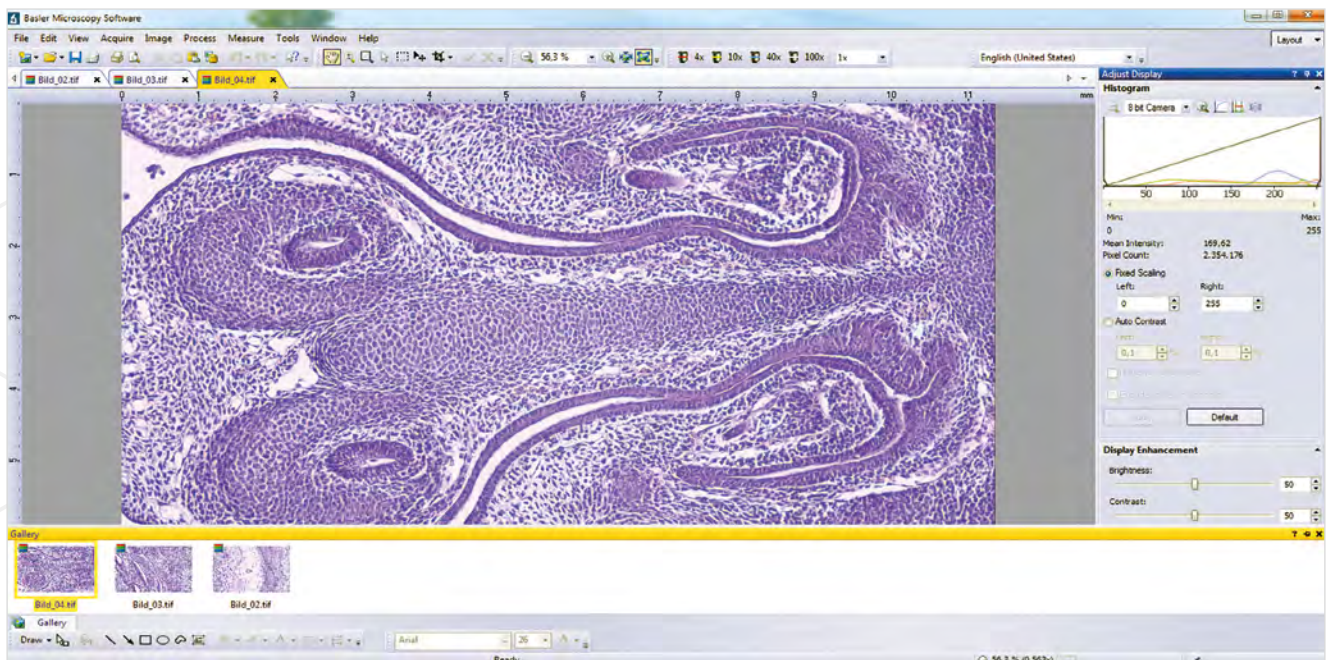
POWERPACK COMPONENTS

Simple Set-up and Installation – All Components at Your Fingertips

Basler's PowerPack delivers all necessary components for a comfortable setup and easy installation. These components enable you to test your system and to start working immediately.
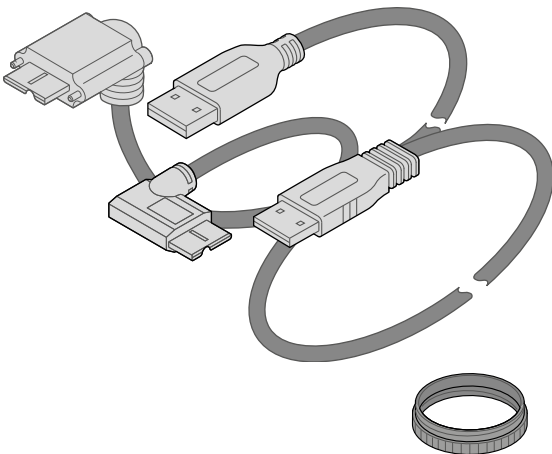
Quick Install Guide

Simple to understand Quick Install Guide with step-by-step instructions.
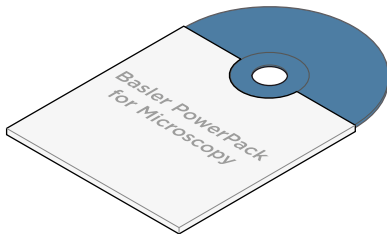
Basler Microscopy Software

Professional software for image acquisition and analysis included in each PowerPack.

USB 3.0 Cable

High quality USB 3.0 cable tested for plug-and-play and reliable operation.

CS- to C-Mount Adapter Ring

For each pulse camera, adapter produced with high precision for ideal C-mount adaption.

Quality made in Germany – made by Basler

Our approach to quality assurance is rigorous: We constantly audit all facets of our business to ensure powerful performance, to increase efficiency and to reduce costs for our customers. We comply with quality standards including ISO 9001, CE, UL, RoHS, and more.

We employ several quality inspection procedures during manufacturing. Every Basler camera is subjected to exhaustive optical, electrical and mechanical tests before leaving the factory. Regardless of what technology or camera model you choose, you can be assured of consistent performance.

Basler is leading the effort to standardize image quality and sensitivity measurement for cameras and sensors. Our cameras are designed and measured in 100% compliance with the EMVA 1288 standard. Basler's reputation for quality speaks for itself and will meet your highest expectations.

Discover Basler

For more information about Basler's offering for your individual microscopy application please visit:
www.baslerweb.com/microscopy

Or stay in touch through our social media channels:

About Basler

Founded in 1988, Basler is a leading global manufacturer of high quality digital cameras and lenses for factory automation, medical and life sciences, 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. 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.

3-Year Warranty

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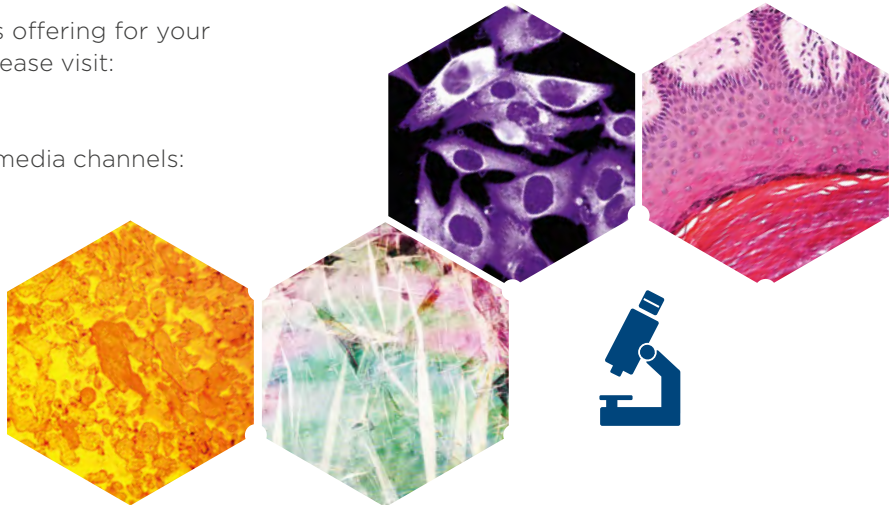
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