

THE IMAGINGSOURCE
TECHNOLOGY BASED ON STANDARDS



GigE Cameras

USB Cameras

FireWire Cameras

Converters

Software

www.theimagingsource.com

Machine Vision – Designed in Germany



Established in 1990, The Imaging Source is a leading manufacturer of industrial cameras, frame grabbers, and video converters used in production automation, quality assurance, logistics, health, security, and surveillance.

With a comprehensive family of cameras utilizing industry standards, The Imaging Source manufactures products that are highly innovative yet very affordable. Implementing only widely adopted interfaces including USB 3.0, USB 2.0, GigE, 1394b, and 1394a, all products are built with our company philosophy of "Technology Based on Standards".

Low Cost Integration and Attractive Pricing

Hardware component development at The Imaging Source is built on a foundation of more than 20 years of successful industrial component programming. This extensive experience in software development guarantees near seamless hardware installation and subsequently lower cost integration. The combination of hardware and software products manufactured by The Imaging Source are characterized by robust components, low cost integration, and attractive pricing.

High Quality and Easy to Use

All cameras, frame grabbers, and video converters manufactured by The Imaging Source are the result of decades of experience. Uncompromising standards and constant development by a global team of application engineers and imaging experts results in unsurpassed product quality.

Utilizing cross product control software and a comprehensive software developer's kit, programmers and system engineers prefer our robust imaging products for their ease of integration. With corporate offices located on three continents and a global reseller network, The Imaging Source and its representatives are available to customers across all time zones.

The Imaging Source Support



What really separates The Imaging Source from its competitors is the unsurpassed customer service and technical support we provide for our products.

The two primary components comprising industrial vision systems is hardware and software. The Imaging Source guarantees fast and efficient support for both these components with our knowledgeable support staff and our expert product developers.

Easy Software Integration

All of The Imaging Source cameras, converters, and frame grabbers include IC Imaging Control, our license free software developer's kit (SDK).

With the comprehensive SDK, it is easy for programmers to integrate our products into their application.

Providing the source code for numerous examples on our website expedites all programming implementations.



www.imagingcontrol.com

The Imaging Source "23" Series GigE Cameras

- Dimensions 29 x 29 x 57 mm
- Wide range of CCD and CMOS sensors
- Power over Ethernet
- Very attractive pricing



Model	Resolution	Megapixel	Pixel Size	Frame Rate	Sensor	Sensor Size	A/D
DMK 23G618	640 x 480	0.3	5.6 µm	120 fps	Sony ICX618ALA	1/4" CCD	8/12 bit
DFK 23G618	640 x 480	0.3	5.6 µm	120 fps	Sony ICX618AQA	1/4" CCD	8/12 bit
DMK 23GV024	752 x 480	0.3	6 µm	100 fps	Aptina MT9V024	1/3" CMOS	8/12 bit
DFK 23GV024	752 x 480	0.3	6 µm	100 fps	Aptina MT9V024	1/3" CMOS	8/12 bit
DMK 23GM021	1280 x 960	1.2	3.75 µm	60 fps	Aptina MT9M021	1/3" CMOS	8/12 bit
DFK 23GM021	1280 x 960	1.2	3.75 µm	60 fps	Aptina MT9M021	1/3" CMOS	8/12 bit
DMK 23G445	1280 x 960	1.2	3.75 µm	30 fps	Sony ICX445ALA	1/3" CCD	8/12 bit
DFK 23G445	1280 x 960	1.2	3.75 µm	30 fps	Sony ICX445AQA	1/3" CCD	8/12 bit
DMK 23G274	1600 x 1200	2	4.4 µm	20 fps	Sony ICX274AL	1/1.8" CCD	8/12 bit
DFK 23G274	1600 x 1200	2	4.4 µm	20 fps	Sony ICX274AQ	1/1.8" CCD	8/12 bit
DMK 23GP031	2592 x 1944	5	2.2 µm	15 fps	Aptina MT9P031	1/2.5" CMOS	8/12 bit
DFK 23GP031	2592 x 1944	5	2.2 µm	15 fps	Aptina MT9P031	1/2.5" CMOS	8/12 bit

The Imaging Source "23" series Gigabit Ethernet cameras are the perfect solution for many industrial automation, quality assurance, security, surveillance, and medical applications. Utilizing monochrome and color CCD and CMOS sensors up to 5 Megapixel, these cameras feature a variety of input, output, strobe, and trigger options via an external Hirose port. With up to 120 fps and a trigger delay of less than 5 micro seconds, the "23" camera series from The Imaging Source is a low cost, yet highly versatile imaging solution.

Included :

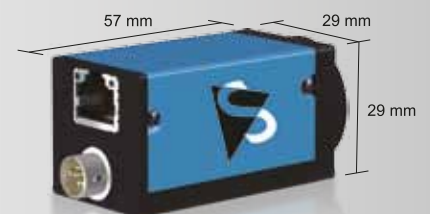
- Camera, CS to C mount adapter, and tripod mount
- Drivers compatible to WDM, DirectShow, DirectX®, TWAIN, ActivVisionTools, HALCON, VFW and LabVIEW® for Windows 7/8, Windows Vista, and Windows XP
- IC Capture camera control and acquisition software for Windows 7/8, Windows Vista, and Windows XP (32 and 64 bit versions)
- IC Imaging Control Software Development Kit (SDK) including a .NET component, an ActiveX component, and a C++ class library for Windows

Features :

- Variable trigger (4µs to 1 s)
- Digital I/O strobe
- CS to C mount adapter
- Binning and ROI (CMOS only)
- Power over Ethernet
- Direct power option
- Optional external DC driven auto iris controller

Accessories :

- CS to M12 adapter
- C, CS, and M12 lenses
- 12VDC power supply
- 6-pin Hirose break-out cable
- External power and trigger cable



Application Example: Logistics



Evidence of increased global international trade is the sheer volume of shipping containers on land and at sea. To cope with the increased traffic at container terminals, many logistics companies have installed automated container handling systems. Automated systems require each and every container to be unambiguously identifiable with the use of labels such as the ISO 6346. Industrial cameras from The Imaging Source have been installed at many of these locations to image analyze these labels at strategic points in ship yards including the ship-to-shore gantries, the container stockyard, the railway entrances, and the trucking docks. These imaging systems enable the logistics companies to know the whereabouts of any and all containers throughout their transit in the container terminal lowering operating costs and increasing security. As the number of containers at a shipyard increase, the label data is used to increase terminal capacity alleviating excessive costs of expansion. Additionally, the data can be used in automation security when containers are filled with "undesirable" goods. The complete registration of containers and the unavoidable data acquisition makes it virtually impossible to avoid customs or security.

The Imaging Source "USB 3.0" Series Cameras

- Dimensions 29 x 29 x 47 mm
- Wide range of CCD and CMOS sensors
- Very attractive pricing



Model	Resolution	Megapixel	Pixel Size	Frame Rate	Sensor	Sensor Size	A/D
DMK 23U618	640 x 480	0.3	5.6 µm	120 fps	Sony ICX618ALA	1/4" CCD	8/12 bit
DFK 23U618	640 x 480	0.3	5.6 µm	120 fps	Sony ICX618AQA	1/4" CCD	8/12 bit
DMK 23UV024	752 x 480	0.3	6 µm	100 fps	Aptina MT9V024	1/3" CMOS	8/12 bit
DFK 23UV024	752 x 480	0.3	6 µm	100 fps	Aptina MT9V024	1/3" CMOS	8/12 bit
DMK 23UM021	1280 x 960	1.2	3.75 µm	60 fps	Aptina MT9M021	1/3" CMOS	8/12 bit
DFK 23UM021	1280 x 960	1.2	3.75 µm	60 fps	Aptina MT9M021	1/3" CMOS	8/12 bit
DMK 23U445	1280 x 960	1.2	3.75 µm	30 fps	Sony ICX445ALA	1/3" CCD	8/12 bit
DFK 23U445	1280 x 960	1.2	3.75 µm	30 fps	Sony ICX445AQA	1/3" CCD	8/12 bit
DMK 23U274	1600 x 1200	2	4.4 µm	20 fps	Sony ICX274AL	1/1.8" CCD	8/12 bit
DFK 23U274	1600 x 1200	2	4.4 µm	20 fps	Sony ICX274AQ	1/1.8" CCD	8/12 bit
DMK 23UP031	2592 x 1944	5	2.2 µm	15 fps	Aptina MT9P031	1/2.5" CMOS	8/12 bit
DFK 23UP031	2592 x 1944	5	2.2 µm	15 fps	Aptina MT9P031	1/2.5" CMOS	8/12 bit

The Imaging Source "USB 3.0" series cameras are the perfect solution for many industrial automation, quality assurance, security, surveillance, and medical applications. Utilizing monochrome and color CCD and CMOS sensors up to 5 Megapixel, these cameras feature a variety of input, output, strobe, and trigger options via an external Hirose port. With up to 120 fps and a trigger delay of less than 5 micro seconds, the "USB 3.0" camera series from The Imaging Source is a low cost, yet highly versatile imaging solution.

Included :

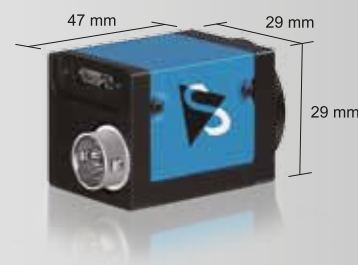
- Camera, CS to C mount adapter, and tripod mount
- Drivers compatible to WDM, DirectShow, DirectX®, TWAIN, ActivVisionTools, HALCON, VFW and LabVIEW® for Windows 7/8, Windows Vista, and Windows XP
- IC Capture camera control and acquisition software for Windows 7/8, Windows Vista, and Windows XP (32 and 64 bit versions)
- IC Imaging Control Software Development Kit (SDK) including a .NET component, an ActiveX component, and a C++ class library for Windows

Features :

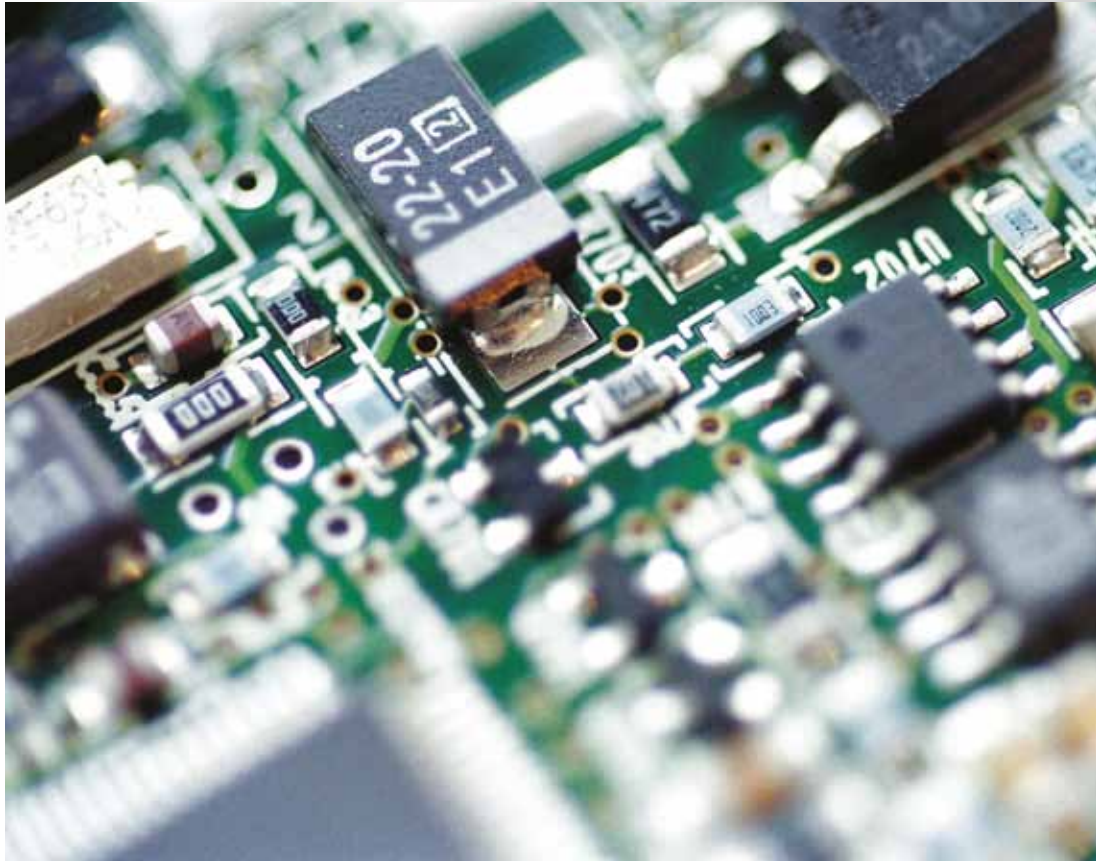
- Variable trigger (4µs to 1 s)
- Digital I/O strobe
- CS to C mount adapter
- Binning and ROI (CMOS only)
- Optional external DC driven auto iris controller

Accessories :

- CS to M12 adapter
- C, CS, and M12 lenses
- 12-pin Hirose trigger cable



Application Example: PCB Manufacturing



As technology progresses, printed circuit boards (PCBs) and electronic components used in product manufacturing decrease in size dramatically. Components that are individually soldered onto PCBs are now so small that it is no longer possible for humans to effectively inspect the quality of PCBs. Currently, one of the most important manufacturing inspection applications for automated vision systems, this highly specialized task is often referred to as Automated Optical Inspection (AOI). The aim of AOI is to avoid assembly with, or shipping incorrectly manufactured PCBs. Equally important, AOI optimizes the manufacturing processes locating bad parts and reporting this to the automated system for removal. The two basic tasks of AOI in this context are detecting and avoiding manufacturing flaws. AOI helps avoid manufacturing errors by image analysis parameterization. As the part moves through the manufacturing process, the imaging system inspects the part and compares the parameter values with defined acceptable and non acceptable results. If one or more soldering errors occur during the manufacturing process, they must be detected and rejected before the next step.

The Imaging Source "IEEE 1394b" Series Cameras

- Dimensions 29 x 29 x 47 mm
- Wide range of CCD and CMOS sensors
- Very attractive pricing



Model	Resolution	Megapixel	Pixel Size	Frame Rate	Sensor	Sensor Size	A/D
DMK 23F618	640 x 480	0.3	5.6 µm	120 fps	Sony ICX618ALA	1/4" CCD	8/12 bit
DFK 23F618	640 x 480	0.3	5.6 µm	120 fps	Sony ICX618AQA	1/4" CCD	8/12 bit
DMK 23FV024	752 x 480	0.3	6 µm	100 fps	Aptina MT9V024	1/3" CMOS	8/12 bit
DFK 23FV024	752 x 480	0.3	6 µm	100 fps	Aptina MT9V024	1/3" CMOS	8/12 bit
DMK 23FM021	1280 x 960	1.2	3.75 µm	60 fps	Aptina MT9M021	1/3" CMOS	8/12 bit
DFK 23FM021	1280 x 960	1.2	3.75 µm	60 fps	Aptina MT9M021	1/3" CMOS	8/12 bit
DMK 23F445	1280 x 960	1.2	3.75 µm	30 fps	Sony ICX445ALA	1/3" CCD	8/12 bit
DFK 23F445	1280 x 960	1.2	3.75 µm	30 fps	Sony ICX445AQA	1/3" CCD	8/12 bit
DMK 23F274	1600 x 1200	2	4.4 µm	20 fps	Sony ICX274AL	1/1.8" CCD	8/12 bit
DFK 23F274	1600 x 1200	2	4.4 µm	20 fps	Sony ICX274AQ	1/1.8" CCD	8/12 bit
DMK 23FP031	2592 x 1944	5	2.2 µm	15 fps	Aptina MT9P031	1/2.5" CMOS	8/12 bit
DFK 23FP031	2592 x 1944	5	2.2 µm	15 fps	Aptina MT9P031	1/2.5" CMOS	8/12 bit

The Imaging Source "IEEE 1394b" series cameras are the perfect solution for many industrial automation, quality assurance, security, surveillance, and medical applications. Utilizing monochrome and color CCD and CMOS sensors up to 5 Megapixel, these cameras feature a variety of input, output, strobe, and trigger options via an external Hirose port. With up to 120 fps and a trigger delay of less than 5 micro seconds, the "IEEE 1394b" camera series from The Imaging Source is a low cost, yet highly versatile imaging solution.

Included :

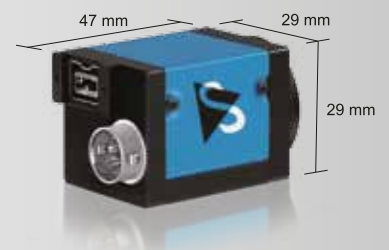
- Camera, CS to C mount adapter, and tripod mount
- Drivers compatible to WDM, DirectShow, DirectX®, TWAIN, ActivVisionTools, HALCON, VFW and LabVIEW® for Windows 7/8, Windows Vista, and Windows XP
- IC Capture camera control and acquisition software for Windows 7/8, Windows Vista, and Windows XP (32 and 64 bit versions)
- IC Imaging Control Software Development Kit (SDK) including a .NET component, an ActiveX component, and a C++ class library for Windows

Features :

- Variable trigger (4µs to 1 s)
- Digital I/O strobe
- CS to C mount adapter
- Binning and ROI (CMOS only)
- Optional external DC driven auto iris controller

Accessories :

- CS to M12 adapter
- C, CS, and M12 lenses
- 12-pin Hirose trigger cable



Application Example: Identification



Today, many of us equate the term "identification" to the study of forensic identification including access control and biometric authentication, or biometrics. Biometrics generally refers to the identification of humans by their characteristics or traits such as fingerprinting, facial recognition, or retinal detection all of which are typical applications now utilizing CMOS cameras manufactured by The Imaging Source. However, the term "identification" is sometimes a much broader scope definition including image, character, or alphanumeric data. In laboratory settings, chemical and biological samples are tracked using some or all of these various data whereas improvised experiments may only require hand-written labeling. For systematic studies, it is routine to use optical markers defined by industry standard bar codes, data matrices, or optical character recognition algorithms all recorded and analyzed with cameras manufactured by The Imaging Source.

The Imaging Source “One4all” Series USB CMOS Cameras

- Dimensions 36 x 36 x 25 mm
- CMOS sensors available
- Very attractive pricing



Model	Resolution	Megapixel	Pixel Size	Frame Rate	Sensor	Sensor Size	A/D
DMK 22A(B)UC03	744 x 480	0.3	6 µm	76 fps	Aptina MT9V024 M	1/3" CMOS	8 bit
DFK 22A(B)UC03	744 x 480	0.3	6 µm	76 fps	Aptina MT9V024 C	1/3" CMOS	8 bit
DMK 42A(B)UC03	1280 x 960	1.2	3,75 µm	25 fps	Aptina MT9M021 M	1/3" CMOS	8 bit
DFK 42A(B)UC03	1280 x 960	1.2	3,75 µm	25 fps	Aptina MT9M021 C	1/3" CMOS	8 bit
DMK 72A(B)UC02	2592 x 1944	5	2.2 µm	6 fps	Aptina MT9P031 M	1/2.5" CMOS	8 bit
DFK 72A(B)UC02	2592 x 1944	5	2.2 µm	6 fps	Aptina MT9P031 C	1/2.5" CMOS	8 bit

The Imaging Source “One4all” series of CMOS machine vision cameras is the perfect solution for many industrial automation, quality assurance, security, surveillance, and medical applications. Utilizing the highly sensitive Aptina MT9P031, MT9V024 and MT9M021 CMOS sensors, the housed products are very compact and are ideally suited to cost sensitive applications. Binning, windowing and high-speed readout are but a few of the performance enhancements that when coupled with DigitalClarity technology, dramatically reduces image noise levels. The Imaging Source “One4all” CMOS cameras are characterized by small housings and very competitive prices.

Included :

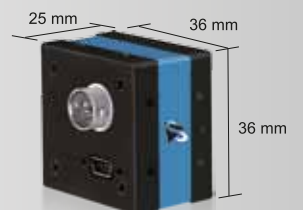
- Camera, CS to C mount adapter, and tripod mount
- Drivers compatible to WDM, DirectShow, DirectX®, TWAIN, ActivVisionTools, HALCON, VfW and LabVIEW® for Windows 7/8, Windows Vista, and Windows XP
- IC Capture camera control and acquisition software for Windows 7/8, Windows Vista, and Windows XP (32 and 64 bit versions)
- IC Imaging Control Software Development Kit (SDK) including a .NET component, an ActiveX component, and a C++ class library for Windows

Features :

- Digital I/O strobe
- CS to C mount adapter
- Binning and ROI

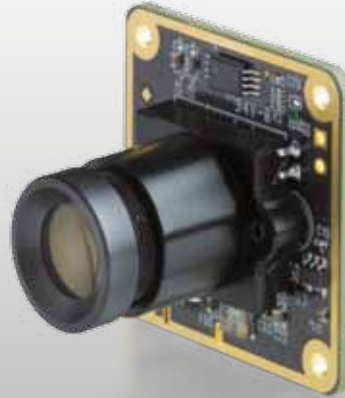
Accessories :

- CS to M12 adapter
- C, CS, and M12 lenses
- USB 2.0 cable (1.8m, 3m, 4.5m)
- 4-pin Hirose trigger cable



The Imaging Source “One4all” Series USB CMOS Board Cameras

- Dimensions 30 x 30 x 2 mm
- CMOS sensors available
- Very attractive pricing



Model	Resolution	Megapixel	Pixel Size	Frame Rate	Sensor	Sensor Size	A/D
DMM 22BUC03-ML	744 x 480	0.3	6 µm	76 fps	Aptina MT9V024 M	1/3" CMOS	8 bit
DFM 22BUC03-ML	744 x 480	0.3	6 µm	76 fps	Aptina MT9V024 C	1/3" CMOS	8 bit
DMM 42BUC03-ML	1280 x 960	1.2	3,75 µm	25 fps	Aptina MT9M021 M	1/3" CMOS	8 bit
DFM 42BUC03-ML	1280 x 960	1.2	3,75 µm	25 fps	Aptina MT9M021 C	1/3" CMOS	8 bit
DMM 72BUC02-ML	2592 x 1944	5	2.2 µm	6 fps	Aptina MT9P031 M	1/2.5" CMOS	8 bit
DFM 72BUC02-ML	2592 x 1944	5	2.2 µm	6 fps	Aptina MT9P031 C	1/2.5" CMOS	8 bit

The Imaging Source “One4all” series of CMOS machine vision cameras is the perfect solution for many industrial automation, quality assurance, security, surveillance, and medical applications. Utilizing the highly sensitive Aptina MT9P031, MT9V024 and MT9M021 CMOS sensors, the board version products are very compact and are ideally suited to cost sensitive applications. Binning, windowing and high-speed readout are but a few of the performance enhancements that when coupled with DigitalClarity technology, dramatically reduces image noise levels. The Imaging Source “One4all” CMOS board cameras are characterized by small PCB dimensions and very competitive prices.

Included :

- Board Camera and JST trigger connector cable
- Camera, CS to C mount adapter and tripod mount
- Drivers compatible to WDM, DirectShow, DirectX®, TWAIN, ActivVisionTools, HALCON, VFW and LabVIEW® for Windows 7/8, Windows Vista, and Windows XP
- IC Capture camera control and acquisition software for Windows 7/8, Windows Vista, and Windows XP (32 and 64 bit versions)
- IC Imaging Control Software Development Kit (SDK), including a .NET component, an ActiveX component and a C++ class library for Windows

Features :

- Digital I/O Strobe
- Microlens (M12) ready
- Binning and ROI

Accessories :

- M12 lenses
- M12 lens holders
- USB 2.0 cable (1.8m, 3m, 4.5m)



The Imaging Source “AutoFocus” Series USB CMOS Cameras

- Dimensions 36 x 36 x 25 mm
- Motorized focus control (via software)
- CMOS sensors available
- Very attractive pricing



Model	Resolution	Megapixel	Pixel Size	Frame Rate	Sensor	Sensor Size	A/D
DMK 22AUC03-F	744 x 480	0.3	6 µm	76 fps	Aptina MT9V024 M	1/3" CMOS	8 bit
DFK 22AUC03-F	744 x 480	0.3	6 µm	76 fps	Aptina MT9V024 C	1/3" CMOS	8 bit
DMK 42AUC03-F	1280 x 960	1.2	3,75 µm	25 fps	Aptina MT9M021 M	1/3" CMOS	8 bit
DFK 42AUC03-F	1280 x 960	1.2	3,75 µm	25 fps	Aptina MT9M021 C	1/3" CMOS	8 bit
DMK 72AUC02-F	2592 x 1944	5	2.2 µm	6 fps	Aptina MT9P031 M	1/2.5" CMOS	8 bit
DFK 72AUC02-F	2592 x 1944	5	2.2 µm	6 fps	Aptina MT9P031 C	1/2.5" CMOS	8 bit

The Imaging Source “AutoFocus” series cameras are the perfect solution for many industrial automation, quality assurance, security, and surveillance applications. Utilizing the highly sensitive Aptina CMOS sensors with selectable windows and pixel binning capabilities, the accurate 125 micron stepper motor accepts a wide range of M12 lenses for a broad range of uses. With wide VGA and 1.2 Megapixel global shutter models, as well as, 5 Megapixel rolling shutter versions, the application possibilities are endless. The easy to use USB 2.0 protocol, the software driven automatic ‘One Push’ focus, and the small housing makes this camera both elegant and versatile.

Included :

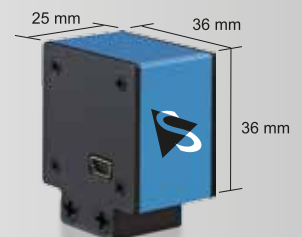
- Camera and tripod mount
- Drivers compatible to WDM, DirectShow, DirectX®, TWAIN, ActivVisionTools, HALCON, VfW and LabVIEW® for Windows 7/8, Windows Vista, and Windows XP
- IC Capture camera control and acquisition software for Windows 7/8, Windows Vista, and Windows XP (32 and 64 bit versions)
- IC Imaging Control Software Development Kit (SDK) including a .NET component, an ActiveX component, and a C++ class library for Windows

Features :

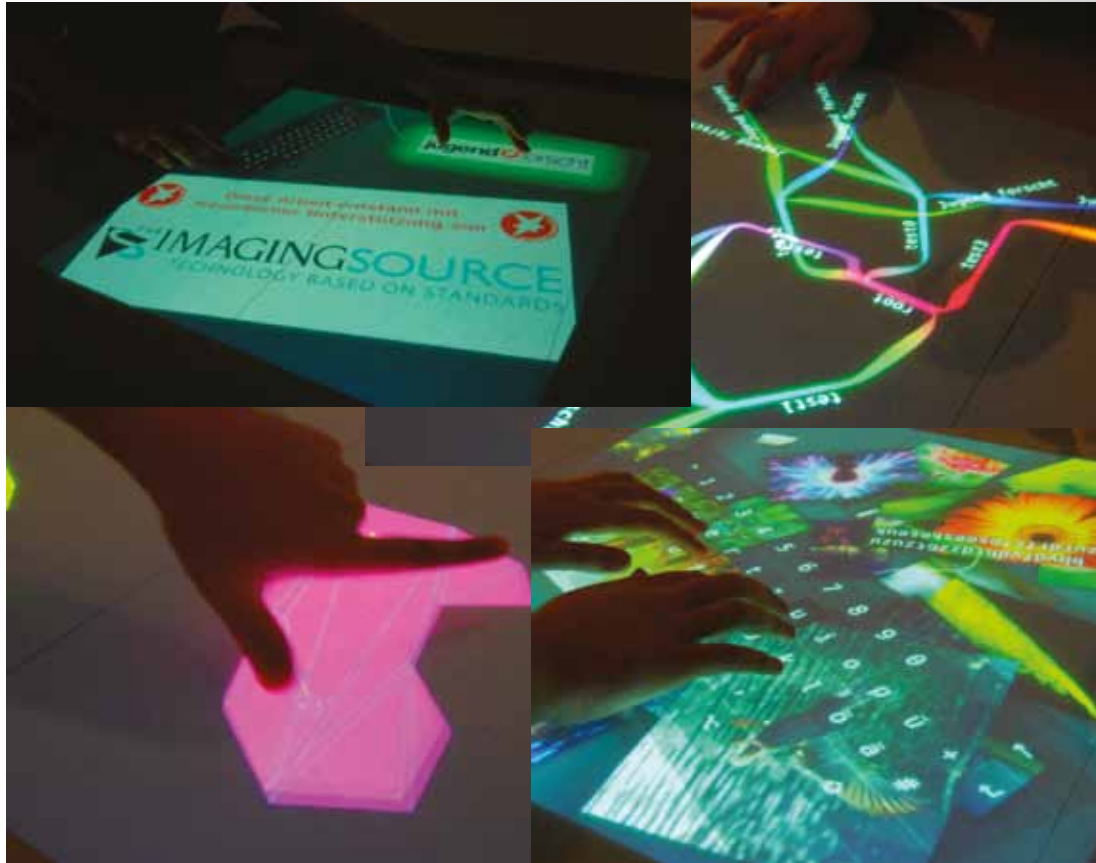
- Motorized focus control (via software)
- Manual and automatic control
- Optimized for M12 lenses
- Binning and ROI

Accessories :

- M12 lenses
- USB 2.0 cable (1.8m, 3m, 4.5m)



Application Example: Touch Screen



Interactive touch surfaces have recently infiltrated all consumer and commercial settings. From movie ticket kiosks to grocery store checkout lanes, this form of data input is no more the exception but is now the norm. Most of the interactive applications are still limited to single inputs, letting the user input data with only one distinct touch point. However, when a camera based system is installed, this is not the case. It is possible to limitlessly increase the number of touch points to the interactive surfaces simply by adding cameras and computing power. One of the first successful multi-touch projects was built by Pascal Schmitt, a student at the Hanns-Seidel High School in Hosboch, Germany. With the support of The Imaging Source, Mr. Schmitt successfully built a multi-touch surface and wrote application software to analyze an image stream that recognizes and converts movement into predefined actions. Schmitt entered his multi-touch project into a national competition for young scientists and won the "Future Technology" prize presented by the Federal Ministry of Reseach and Technology in Germany. For details, please go to: <http://multitouch.sourceforge.net/>

The Imaging Source USB Converter

- Dimensions 32 x 58 x 95 mm
- Video / Audio to USB
- Very attractive pricing



Despite the fast growing world of digital cameras, the number of legacy analog video sources still used in the market is enormous. Analog to digital converters like the DFG/USB2pro and DFG/USB2aud are perfect instruments to convert these analog sources into digital data streams.

The DFG/USB2pro can convert analog video signals (PAL, NTSC, CCIR, EIA) into uncompressed image data streams. The DFG/USB2aud version converts not only image data, but also digitizes the audio signals.

Included :

- Analog to Digital Converter
- Drivers compatible to WDM, DirectShow, DirectX®, TWAIN, ActivVisionTools, HALCON, VFW and LabVIEW® for Windows 7/8, Windows Vista, and Windows XP
- IC Capture camera control and acquisition software for Windows 7/8, Windows Vista, and Windows XP (32 and 64 bit versions)
- IC Imaging Control Software Development Kit (SDK) including a .NET component, an ActiveX component, and a C++ class library for Windows

Features :

- Inputs: Composite and S-Video (Y/C)
- Output DFG/USB2pro: USB2.0, Uncompressed image data stream
- Video formats: PAL/CCIR, NTSC/RS-170
- Max resolution (NTSC/RS-170): 640x480 @ 30 Hz
- Max resolution (PAL/CCIR): 768x576 @ 25 Hz

Additional Audio Version Features:

- Inputs: Audio
- Output DFG/USB2aud: USB2.0, Uncompressed image and audio stream



Application Example: Sewer Inspection



As with all technically intricate facilities, solid waste systems can sometimes malfunction. Without thorough visual inspections and regular site maintenance, both public health and consumer safety are inevitably put at risk. Historically, these crucial inspections are performed using analog cameras as their cable lengths have virtually no limit. However, since all maintenance and documentation proof is now stored in digital formats, engineers inevitably convert the analog signals to digital formats using converters manufactured by The Imaging Source. The DFG/USB2pro converts both NTSC and PAL data streams into uncompressed AVI files using the standard USB2.0 protocol, IC Capture and IC Imaging Control, the image acquisition software and software developer's kit included with product purchase.

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All weights and dimensions are approximate. Unless otherwise specified the lenses shown in the context of cameras are not shipped with these cameras.