

DFK 23UX174 Color Camera

The Imaging Source "23" Series USB 3.0 Camera



Only 29×29×43 mm

Lens not included

The Imaging Source DFK 23UX174 color camera has a USB 3.0 interface and is the perfect solution for many industrial automation, quality assurance, security, surveillance and medical applications. The color camera ships with the very sensitive 1/1.2 inch Sony CMOS Pregius IMX174LQ sensor. With up to 54 images per second, the DFK 23UX174 is a low cost, yet highly versatile imaging solution. The camera includes a C to CS mount adapter, making it compatible to C and CS mount lenses. Using the optional CS to M12 board lens adapter, the camera is also compatible to M12 board lenses.

The Imaging Source authors and supports drivers, SDKs, extensions and end-user software for Microsoft Windows, which can be freely downloaded from our web site. Extensions for Microsoft Windows enable the DFK 23UX174 to be integrated in to common machine vision software libraries, such as LabView and OpenCV. Furthermore, we author and support open source Linux drivers and software (Apache License 2.0) to integrate the camera into popular distributions. Download the Linux source code at GitHub.

Features

- USB 3.0 interface
- 1/1.2 inch Sony CMOS Pregius sensor (IMX174LQ)
- 1,920×1,200 (2.3 MP)
- Up to 54 images per second
- Global shutter
- Trigger and I/O inputs
- Only 29×29×43 mm
- Compatible to C and CS mount lenses
- Manufactured by The Imaging Source
- Ships with Windows and Linux software

Accessories

- CS to C mount adapter (shipped as standard)
- C and CS mount lenses
- CS to M12 board lens adapters
- M12 board lenses
- Standard USB 3.0 cable in various lengths
- 3 m USB 3.0 cable with fixing screws
- Trigger cable

Device Drivers for Microsoft Windows

Device Driver for USB Cameras

Software Development Kits (SDKs) for Microsoft Windows

IC Imaging Control .NET Component for C#, VB.NET, C++ Class Library for C++ projects, IC Imaging Control C Library, IC Imaging Control ActiveX, IC Imaging Control ActiveX Runtime Setup

Extensions for Microsoft Windows

TWAIN Source for IC Imaging Control, Cognex VisionPro AIK Plugin for IC Imaging Control, LabVIEW Extension for IC Imaging Control, IC Matlab Plugin for Matlab 10.0 R2010, IC Matlab Plugin for Matlab R2013b and higher versions, IC NeuroCheck Driver for NeuroCheck 6.0, IC NeuroCheck Driver for NeuroCheck 6.1

End User Software for Microsoft Windows

IC Capture - image acquisition, IC Measure - manual on-screen image measurement and image acquisition, IC Fullscreen Presenter, IC Line Profiler, Footswitch software for IC Capture, Scan2Docx, Scan2Docx OCR, Scan2Voice



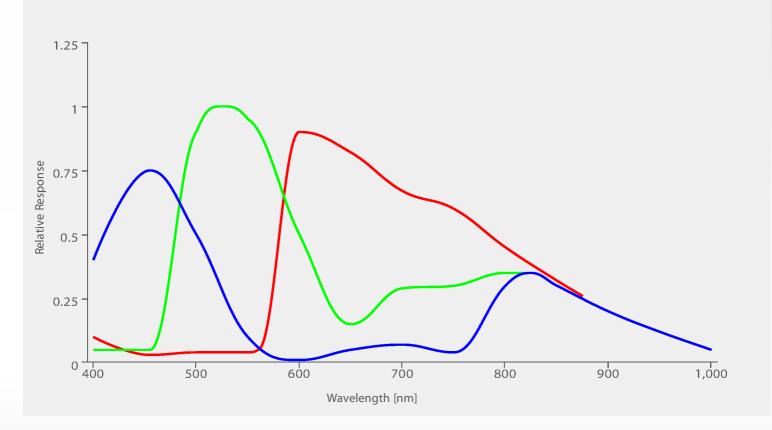
DFK 23UX174 Specification

Dynamic range8/12 bitVideo formats @ frame rate (maximum)1,920×1,200 (2.3 MP) Y800 @ 54 fps 1,920×1,200 (2.3 MP) Y6 @ 25 fps 1,920×1,200 (2.3 MP) R6 B32 @ 54 fpsINTERFACE (OPTICAL)IR cut filter✓Sensor typeCMOS PregiusSensor typeCMOS PregiusSensor specificationSony IMX124LQShutterglobalFormat1/12 inchResolution (maximum)H: 1,920 px, V: 1,200 pxFrame rate (maximum)54 fpsPixel sizeH: 5.86 µm, V: 5.86 µmLens mountC/CSInterfaceUSB 3.0Supply voltage4.5 VDC to 5.5 VDCCurrent consumptionapprox 250 mA @ 5 VDCAuto inis control¥Trigger✓I/os✓DimensionsH: 29 mm, W: 29 mm, L: 43 mmMass65 gADJUSTMENTSShutter1/100000 s to 30 sGain0 dB to 36 dBWhite balance-2 dB to 6 dBENVIRONMENTALTemperature (operating)-5 °C to 45 °CTemperature (storage)-20 °C to 60 °CHumidity (operating)20 % to 80 % (nom-condensing)Humidity (storage)20 % to 95 % (nom-condensing)Humidity (storage)20 % to 95 % (nom-condensing)	GENERAL BEHAVIOR	
(maximum) 1,920×1,200 (2.3 MP) Y16 @ 25 fps 1,920×1,200 (2.3 MP) RGB32 @ 54 fps INTERFACE (OPTICAL) I IR cut filter CMOS Pregius Sensor specification Sony IMX174LQ Sensor specification Sony IMX174LQ Shutter global Format V1,2 inch Resolution (maximum) H: 1920 px, V: 1,200 px Frame rate (maximum) 54 fps Prame rate (maximum) 54 fps Prove 55 86 µm Lens mount C/CS	Dynamic range	8/12 bit
IR cut filterSensor typeCMOS PregiusSensor specificationSony IMX124LQShutterglobalFormat1/1.2 inchResolution (maximum)H: 1.920 px, V: 1.200 pxFrame rate (maximum)54 fpsPixel sizeH: 5.86 µm, V: 5.86 µmLens mountC/CSINTERFACE (ELECTRICAL)InterfaceUSB 3.0Supply voltage4.5 VDC to 5.5 VDCCurrent consumptionapprox 250 mA @ 5 VDCAuto iris control*InterfACE (MECHANICAL)*DimensionsH: 29 mm, W: 29 mm, L: 43 mmMass65 gAULTERFACE (MECHANICAL)*Shutter1/100000 S to 30 SGain0 dB to 36 dBWhite balance-2 dB to 6 dBENVIRONMENTAL*Temperature (operating)-5 °C to 45 °CTemperature (storage)-20 °C to 60 °CHumidity (operating)20 % to 80 % (non-condensing)Humidity (storage)20 % to 95 % (non-condensing)	_	1,920×1,200 (2.3 MP) Y16 @ 25 fps
Sensor typeCMOS PregiusSensor specificationSony JMX1Z4LQShutterglobalFormat1/1.2 inchResolution (maximum)H: 1.920 px, V: 1.200 pxFrame rate (maximum)54 fpsPixel sizeH: 5.86 µm, V: 5.86 µmLens mountC/CSInterface (USB 3.0Supply voltage4.5 VDC to 5.5 VDCCurrent consumptionapprox 250 mA @ 5 VDCAuto iris control¥Trigger-I/Os-DimensionsH: 29 mm, W: 29 mm, L: 43 mmMass65 gShutter1/100000 \$ to 30 \$Gain0 dB to 36 dBWhite balance-2 °C to 60 °CHumidity (operating)20 % to 80 % (non-condensing)Humidity (storage)20 % to 95 % (non-condensing)	INTERFACE (OPTICAL)	
Sensor specificationSony IMX174LQShutterglobalFormat1/1.2 inchResolution (maximum)H: 1.920 px, V: 1.200 pxFrame rate (maximum)54 fpsPixel sizeH: 5.86 μm, V: 5.86 μmLens mountC/C5INTERFACE (ELECTRICAL)InterfaceUSB 3.0Supply voltage4.5 VDC to 5.5 VDCCurrent consumptionapprox 250 mA @ 5 VDCAuto iris control¥Trigger-I/Os-DimensionsH: 2.9 mm, W: 29 mm, L: 43 mmMass65 gAbutter1/100000 \$ to 30 \$Gain0 dB to 36 dBWhite balance-2 dB to 6 dBENVIRONMENTAL-2 °C to 60 °CHumidity (operating)20 % to 80 % (non-condensing)Humidity (storage)20 % to 95 % (non-condensing)	IR cut filter	✓
ShutterglobalFormat1/1,2 inchResolution (maximum)H: 1,920 px, V: 1,200 pxFrame rate (maximum)54 fpsPixel sizeH: 5.86 μm, V: 5.86 μmLens mountC/CSINTERFACE (ELECTRICAL)InterfaceUSB 3.0Supply voltage4.5 VDC to 5.5 VDCCurrent consumptionapprox 250 mA @ 5 VDCAuto iris control*IVOs~INTERFACE (MECHANICAL)/DimensionsH: 29 mm, W: 29 mm, L: 43 mmMass65 gADUSTMENTS/Shutter1/100000 \$ to 30 \$Gain0 dB to 36 dBWhite balance-2 dB to 6 dBENVIRONMENTAL-2 dB to 6 dBHumidity (operating)-5 °C to 45 °CTemperature (storage)-20 °C to 60 °CHumidity (storage)20 % to 95 % (non-condensing)Humidity (storage)20 % to 95 % (non-condensing)	Sensor type	CMOS Pregius
Format $1/1_2$ inchResolution (maximum)H: 1,920 px, V: 1,200 pxFrame rate (maximum)54 fpsPixel sizeH: 5.86 µm, V: 5.86 µmLens mountC/CSINTERFACE (ELECTRICAL)InterfaceUSB 3.0Supply voltage4.5 VDC to 5.5 VDCCurrent consumptionapprox 250 mA @ 5 VDCAuto iris controlXTrigger $-$ I/Os $-$ INTERFACE (MECHANICAL)DimensionsH: 29 mm, W: 29 mm, L: 43 mmMass65 gADJUSTMENTSShutter $1/100000$ s to 30 sGain0 dB to 36 dBWhite balance -2 dB to 6 dBENVIRONMENTAL -5 °C to 45 °CTemperature (operating) -5 °C to 45 °CTemperature (storage) -20 % to 89 % (non-condensing)Humidity (storage)20 % to 95 % (non-condensing)	Sensor specification	Sony <u>IMX174LQ</u>
Resolution (maximum)H: 1,920 px, V: 1,200 pxFrame rate (maximum)54 fpsPixel sizeH: 5.86 µm, V: 5.86 µmLens mountC/CSINTERFACE (ELECTRICAL)InterfaceUSB 3.0Supply voltage4.5 VDC to 5.5 VDCCurrent consumptionapprox 250 mA @ 5 VDCAuto iris control*Trigger~I/Os*DimensionsH: 29 mm, W: 29 mm, L: 43 mmMass65 gShutter1/100000 s to 30 sGain0 dB to 36 dBWhite balance-2 dB to 6 dBENVIRONMENTAL-2 0°C to 60°CHumidity (storage)20% to 95 % (non-condensing)	Shutter	global
Frame rate (maximum)54 fpsPixel sizeH: 5.86 µm, V: 5.86 µmLens mountC/CSINTERFACE (ELECTRICAL)InterfaceUSB 3.0Supply voltage4.5 VDC to 5.5 VDCCurrent consumptionapprox 250 mA @ 5 VDCAuto iris control*Trigger-I/Os*DimensionsH: 29 mm, W: 29 mm, L: 43 mmMass65 gAutter1/100000 s to 30 sGain0 dB to 36 dBWhite balance-2 dB to 6 dBENVIRONMENTAL-5 °C to 45 °CTemperature (storage)-20 °C to 60 °CHumidity (storage)20% to 95 % (non-condensing)	Format	¹ / _{1.2} inch
Pixel sizeH: 5.86 μm, V: 5.86 μmLens mountC/CSINTERFACE (ELECTRICAL)InterfaceUSB 3.0Supply voltage4.5 VDC to 5.5 VDCCurrent consumptionapprox 250 mA @ 5 VDCAuto iris control¥Trigger-I/Os*INTERFACE (MECHANICAL)·DimensionsH: 29 mm, W: 29 mm, L: 43 mmMass65 gADJUSTMENTSShutter1/100,000 s to 30 sGain0 dB to 36 dBWhite balance-2 dB to 6 dBENVIRONMENTALTemperature (operating)-5 °C to 45 °CTemperature (storage)-20 °C to 60 °CHumidity (storage)20 % to 95 % (non-condensing)	Resolution (maximum)	H: 1,920 px, V: 1,200 px
Lens mountC/CSINTERFACE (ELECTRICAL)InterfaceUSB 3.0Supply voltage4.5 VDC to 5.5 VDCCurrent consumptionapprox 250 mA @ 5 VDCAuto iris control¥Auto iris control(-Jrigger·I/Os·INTERFACE (MECHANICAL)-DimensionsH: 29 mm, W: 29 mm, L: 43 mmMass65 gADJUSTMENTS-Shutter.1/10,000 s to 30 sGain0 dB to 36 dBWhite balance-2 dB to 6 dBENVIRONMENTAL-5 °C to 45 °CTemperature (operating)-5 °C to 60 °CHumidity (operating)20 % to 80 % (non-condensing)Humidity (storage)20 % to 95 % (non-condensing)	Frame rate (maximum)	54 fps
INTERFACE (ELECTRICAL)InterfaceUSB 3.0Supply voltage4.5 VDC to 5.5 VDCCurrent consumptionapprox 250 mA @ 5 VDCAuto iris control*Trigger·InterFACE (MECHANICAL)·DimensionsH: 29 mm, W: 29 mm, L: 43 mmMass65 gADJUSTMENTSShutter1/100,000 s to 30 sGain0 dB to 36 dBWhite balance-2 dB to 6 dBENVIRONMENTALTemperature (operating)-5 °C to 45 °CTemperature (storage)-20 °C to 60 °CHumidity (storage)20 % to 95 % (non-condensing)Humidity (storage)20 % to 95 % (non-condensing)	Pixel size	H: 5.86 μm, V: 5.86 μm
InterfaceUSB 3.0Supply voltage4.5 VDC to 5.5 VDCCurrent consumptionapprox 250 mA @ 5 VDCAuto iris control*Auto iris control*Trigger-I/Os*INTERFACE (MECHANICAL)*DimensionsH: 29 mm, W: 29 mm, L: 43 mmMass65 gADJUSTMENTSShutter1/100,000 s to 30 sGain0 dB to 36 dBWhite balance-2 dB to 6 dBENVIRONMENTALTemperature (operating)-5 °C to 45 °CTemperature (storage)-20 °C to 60 °CHumidity (operating)20 % to 80 % (non-condensing)Humidity (storage)20 % to 95 % (non-condensing)	Lens mount	C/CS
SurfactCorr atSupply voltage4.5 VDC to 5.5 VDCCurrent consumptionapprox 250 mA @ 5 VDCAuto iris control*Auto iris control*Trigger-I/Os*INTERFACE (MECHANICAL)*DimensionsH: 29 mm, W: 29 mm, L: 43 mmMass65 gADJUSTMENTSShutter1/100,000 s to 30 sGain0 dB to 36 dBWhite balance-2 dB to 6 dBENVIRONMENTALTemperature (operating)-5 °C to 45 °CTemperature (storage)-20 °C to 60 °CHumidity (operating)20 % to 80 % (non-condensing)Humidity (storage)20 % to 95 % (non-condensing)	INTERFACE (ELECTRICAL)	
Current consumptionapprox 250 mA @ 5 VDCAuto iris control¥Trigger•I/Os•I/Os•INTERFACE (MECHANICAL)DimensionsH: 29 mm, W: 29 mm, L: 43 mmMass65 gADJUSTMENTSShutter1/100,000 s to 30 sGain0 dB to 36 dBWhite balance-2 dB to 6 dBENVIRONMENTALTemperature (operating)-5 °C to 45 °CTemperature (storage)-20 °C to 60 °CHumidity (operating)20 % to 95 % (non-condensing)	Interface	USB 3.0
Auto iris control¥Auto iris controlYTrigger·I/Os·I/Os·INTERFACE (MECHANICAL)Interface (MECHANICAL)DimensionsH: 29 mm, W: 29 mm, L: 43 mmMass65 gADJUSTMENTSShutter1/100,000 s to 30 sGain0 dB to 36 dBWhite balance-2 dB to 6 dBENVIRONMENTALTemperature (operating)-5 °C to 45 °CTemperature (storage)-20 °C to 60 °CHumidity (operating)20 % to 80 % (non-condensing)Humidity (storage)20 % to 95 % (non-condensing)	Supply voltage	4.5 VDC to 5.5 VDC
Trigger✓I/Os✓I/TERFACE (MECHANICAL)✓DimensionsH: 29 mm, W: 29 mm, L: 43 mmMass65 gADJUSTMENTSShutter1/100,000 s to 30 sGain0 dB to 36 dBWhite balance-2 dB to 6 dBENVIRONMENTALTemperature (operating)-5 °C to 45 °CTemperature (storage)-20 °C to 60 °CHumidity (operating)20 % to 80 % (non-condensing)Humidity (storage)20 % to 95 % (non-condensing)	Current consumption	approx 250 mA @ 5 VDC
I/Os INTERFACE (MECHANICAL) Dimensions H: 29 mm, W: 29 mm, L: 43 mm Mass 65 g ADJUSTMENTS Intersection of the term of the term of the term of	Auto iris control	×
INTERFACE (MECHANICAL)DimensionsH: 29 mm, W: 29 mm, L: 43 mmMass65 gADJUSTMENTSShutter1/100,000 s to 30 sGain0 dB to 36 dBWhite balance-2 dB to 6 dBENVIRONMENTALTemperature (operating)-5 °C to 45 °CTemperature (storage)-20 °C to 60 °CHumidity (operating)20 % to 80 % (non-condensing)Humidity (storage)20 % to 95 % (non-condensing)	Trigger	✓
DimensionsH: 29 mm, W: 29 mm, L: 43 mmMass65 gADJUSTMENTSShutter1/100,000 s to 30 sGain0 dB to 36 dBWhite balance-2 dB to 6 dBENVIRONMENTALTemperature (operating)-5 °C to 45 °CTemperature (storage)-20 °C to 60 °CHumidity (operating)20 % to 80 % (non-condensing)Humidity (storage)20 % to 95 % (non-condensing)	I/Os	1
Mass65 gADJUSTMENTSShutter1/100,000 s to 30 sGain0 dB to 36 dBWhite balance-2 dB to 6 dBENVIRONMENTAL-2 dB to 6 dSTemperature (operating)-5 °C to 45 °CTemperature (storage)-20 °C to 60 °CHumidity (operating)20 % to 80 % (non-condensing)Humidity (storage)20 % to 95 % (non-condensing)	INTERFACE (MECHANICAL)	
ADJUSTMENTSShutter1/100,000 s to 30 sGain0 dB to 36 dBWhite balance-2 dB to 6 dBENVIRONMENTALTemperature (operating)-5 °C to 45 °CTemperature (storage)-20 °C to 60 °CHumidity (operating)20 % to 95 % (non-condensing)Humidity (storage)20 % to 95 % (non-condensing)	Dimensions	H: 29 mm, W: 29 mm, L: 43 mm
Shutter1/100,000 s to 30 sGain0 dB to 36 dBWhite balance-2 dB to 6 dBENVIRONMENTALTemperature (operating)-5 °C to 45 °CTemperature (storage)-20 °C to 60 °CHumidity (operating)20 % to 80 % (non-condensing)Humidity (storage)20 % to 95 % (non-condensing)	Mass	65 g
Gain0 dB to 36 dBWhite balance-2 dB to 6 dBENVIRONMENTALTemperature (operating)-5 °C to 45 °CTemperature (storage)-20 °C to 60 °CHumidity (operating)20 % to 80 % (non-condensing)Humidity (storage)20 % to 95 % (non-condensing)	ADJUSTMENTS	
White balance-2 dB to 6 dBENVIRONMENTAL-5 °C to 45 °CTemperature (operating)-5 °C to 45 °CTemperature (storage)-20 °C to 60 °CHumidity (operating)20 % to 80 % (non-condensing)Humidity (storage)20 % to 95 % (non-condensing)	Shutter	1/ _{100,000} s to 30 s
ENVIRONMENTALTemperature (operating)-5 °C to 45 °CTemperature (storage)-20 °C to 60 °CHumidity (operating)20 % to 80 % (non-condensing)Humidity (storage)20 % to 95 % (non-condensing)	Gain	0 dB to 36 dB
Temperature (operating)-5 °C to 45 °CTemperature (storage)-20 °C to 60 °CHumidity (operating)20 % to 80 % (non-condensing)Humidity (storage)20 % to 95 % (non-condensing)	White balance	-2 dB to 6 dB
Temperature (storage)-20 °C to 60 °CHumidity (operating)20 % to 80 % (non-condensing)Humidity (storage)20 % to 95 % (non-condensing)	ENVIRONMENTAL	
Humidity (operating)20 % to 80 % (non-condensing)Humidity (storage)20 % to 95 % (non-condensing)	Temperature (operating)	-5 ℃ to 45 ℃
Humidity (storage)20 % to 95 % (non-condensing)	Temperature (storage)	-20 °C to 60 °C
	Humidity (operating)	20 % to 80 % (non-condensing)
Subject to change	Humidity (storage)	20 % to 95 % (non-condensing)
		Subject to change



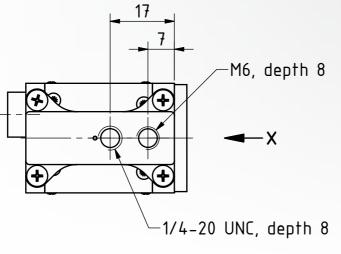
Sony IMX174LQ Spectral Response Curve

CMOS Pregius Sensor in DFK 23UX174





DFK 23UX174 Dimensional Diagram





view X

29

29

